STANDARD HORIZON

Color GPS Chart Plotters/Fish Finder

CPF180i
CPF300i

Owner's Manual

CPF180i

CPF300i

WARNING!!!

Electronic charts displayed by the GPS Chart Plotter are believed to be accurate and reliable, but are not intended to be a substitute for the official charts, which should remain your main reference for all matters related to the execution of safe navigation.
For this reason you should always keep the official published and approved nautical charts on board.

FCC Compliance Statement

This device complies with Part 15 of the FCC limits for Class A digital devices. This equipment generates, uses and can radiate radio frequency energy and, if not installed or used in accordance with the instructions may cause harmful interference with radio communications.
There is no guarantee that interference will not occur in a particular instance. If this equipment does cause harmful interference to other equipment, try to correct the problem by relocating the equipment.

Consult an authorized STANDARD HORIZON dealer or other qualified service technician if the problem cannot be corrected. Operation is subject to the following conditions: (1) This device cannot cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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OM CODE: S4x2SH5c_0ww 16.50eD78 & S4x2SH8wc_0ww 16.50aD80 - 310111

CAUTION

- The GPS Chart Plotter is designed for maritime use. To avoid water intrusion, ensure the C-MAP BY JEPPESEN C-CARD door is completely closed.
- Extensive exposure to heat may result in damage to the GPS Chart Plotter.
- The GPS Chart Plotter contains dangerous high-voltage circuits which only experienced technicians can handle.
- STANDARD HORIZON will not be liable for errors contained herein, or for incidental or consequential damages in connection with the performance or use of this material.

CLEANING PROCEDURE FOR THE GPS CHART PLOTTER SCREEN

Cleaning of the chart plotter screen is a very important operation and must be done carefully. Since the surface is covered by a antireflective coating, the procedure for cleaning all the surfaces can be performed using the following procedure: Use a clean, soft, lint-free cloth to clean the glass. We recommend using a micro-fiber cloth. Spray a small amount of ammonia-free cleaner (isopropyl alcohol) onto the cloth. Spraying on the cloth will prevent overspray. Fold the cloth or lens cloth into a triangular shape, moisten the tip and use the index finger behind a corner to move the cloth across the surface in overlapping side to side strokes. If the cloth is too wet, a noticeable wet film will be left in its path and you will need to repeat the process. If too dry, the cloth won't glide easily, and may damage the surface.

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1. INTRODUCTION

Congratulations on your purchase of the STANDARD HORIZON GPS Chart Plotter. Whether this is your first Navigation device, or if you have other STANDARD HORIZON equipment, STANDARD HORIZON organization is committed to ensuring your enjoyment of this Navigation device. STANDARD HORIZON technical support personnel stand behind every product we sell. Post Sales and Technical Support can be obtained from your dealer or distributor. European customers are invited to contact their dealer or distributor in their country for support. UK customers can contact STANDARD HORIZON on 01962 866667 or marinesales@standardhorizon.co.uk.

1.0 GENERAL INFORMATION

The CPF180i and CPF300i (with internal GPS antenna and Fish Finder) are precision-crafted high-performance receivers for the Global Positioning System (WAAS GPS) constellation of satellites that provide precise location data with a host of navigation features and are ideal for nautical use and sealed against water ingress. The CPF180i and CPF300i are housed in rugged, impact-resistant cases with outstanding ergonomic design for effortless operation. The CPF180i and CPF300i are IP56 water resistent.

The advanced features of the GPS Chart Plotter/Fish Finder include:

- CPF180i - 5" 320 x 232 sunlight-readable display
- CPF300i - 7" Hi Res 800x480 sunlight-readable display
- Internal 50 Channel WAAS GPS
- CPF300i - Video Input with *"picture-in-picture"* display
- Dual chart window with independent zoom levels
- Built-in Fish Finder. Radar and AIS capable
- Selectable sailboat and power boat ship icons with red and green for port and starboard
- Compass Rose indication around ship icon
- Satellite images on base chart
- Route Checking
- Color Targets AIS
- Dedicated AIS List page
- Navigate to an Olympic Route
- SOG Speed Filter function to resolve erratic speed redings in rough seas
- Dedicated MARK, ROUTE and FIND keys
- Swivel mounting bracket
- CPF180i - 1 NMEA Input / 2 Outputs
- CPF300i - 3 NMEA Inputs / 4 Outputs
- 3000 Marks / 50 Routes / 10000 Track Points
- 3 year Waterproof Warranty

Fish Finder features:

- 256 colors display
- Built-in 600W Dual Frequency Fish Finder
- 50 and 200kHz Frequency selection
- 2x and 4x Zoom
- Bottom Lock and White Line selections

- Sensitivity Time Control (STC) and Surface Noise Filter
- Speed through water (if available on transducer)
- Alarms - Shallow, Depth, Temp Upper and Lower
- Temperature (if available on transducer)

1.1 PACKING LIST

When the package containing the Navigation device is first opened, please check for the following contents. If any parts are missing contact the dealer this Navigation device was purchased from.
Accessories and replacement parts may be ordered from STANDARD HORIZON's Parts Department at 741/827-7600 extension 6800 or e-mail at yaesuparts@vxstdusa.com.

1.1.0 CPF180i Packing List

PART CODE	ITEM
S8002224A	External bracket
S8002225	Mounting knob with two washers
S8002222	Dust cover
T9101553	Power data cable
S8002223	Flush mounting screws
EM022U500	Flush mount template
XUCMP0052	2 Amp fuse and holder
EM022U107	Owner's Manual
EM023U510	Quick Reference Guide

1.1.1 CPF300i Packing List

PART CODE	ITEM
S8002224A	External bracket
S8002225	Mounting knob with two washers
S8002235	Dust cover
T9101553	Power & Accessory cable
S8002223	Flush mounting screws
EM022U500	Flush mount template
XUCMP0052	2 Amp fuse and holder
EM022U107	Owner's Manual
EM023U510	Quick Reference Guide

1.2 OPTIONAL ACCESSORIES

ACCESSORIES	PARTS NAME	ITEM
	ACVC10	Video Adapter cable (AAF69X001) (CPF300i ONLY)
	Q7000619A	50 Channel GPS Antenna Unit GSU-5H Series UXOGSU51SD
	DST520	600W 2" Nylon Thru-hull depth temp Transducer
	DST521	600W Transom mount depth, speed temp Transducer
	DST523	600W 2" Bronze Thru-hull depth temp Transducer
	DST525	600W In-hull Transducer
	DST526	600W 2" Bronze Thru-hull depth, speed temp Transducer
	DST527	1000W In-hull depth Transducer
	DST528A	1000W Bronze long stem depth temp Transducer

1.3 OPTIONAL DOME OR OPEN ARRAY RADAR ANTENNAS

The Radar antennas are supplied by SI-TEX (631) 996-2690 in the USA and Canada. Refer to the table below for compatible models:

MODEL NUMBER	DESCRIPTION
MDS-1	2kW 24 Mile 12.4" diameter Radome antenna
MDS-8	2kW 24 Mile 20" diameter Radome antenna
MDS-9	4kW 36 Mile 23.5" diameter Radome antenna
MDS-10-4	4kW 48 Mile 4FT Open Array
MDS-10-5	4kW 48 Mile 5FT Open Array

NOTE

For additional information, refer to the Radar Installation and Radar Operation Manuals located at www.standardhorizon.com.

2. INSTALLATION

NOTE

Throughout this Owner's Manual same conventions are used. See the legend below:

[MENU] If you see brackets around a bold and capital letter word this refers to a key press.

[CHART] If you see brackets around a bold and small capital letter word this refers to a Soft Key press.

GENERAL SETUP When a word(s) is bold capital letters and underlined, this refers to a menu selection item.

A GPS receiver and antenna are located inside the CPF180i and CPF300i and are designed to be bracket mounted. Both models may be flush mounted, however an optional external GPS antenna may be needed to receive GPS satellite signals.

To use the external GPS antenna, the internal GPS antenna must be turned off, using the procedure below:

1. Turn the CPF180i or CPF300i On and select the **GPS STATUS** page.
2. Press **[ENT]** to show the **GPS SETUP** menu.
3. Move the ShuttlePoint knob to highlight **INTERNAL GPS** and press **[ENT]**.
4. Move the ShuttlePoint knob to highlight **OFF** and press **[ENT]**.

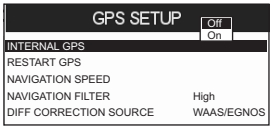


Figure 2 - GPS Setup menu

5. Press **[CLR]** to exit the **GPS SETUP** menu.
6. Confirm the GPS Status page is showing satellite signal strength bars and receive a fix.

2.0 MOUNTING THE GPS CHART PLOTTER

The CPF180i and CPF300i are supplied with a swivel mounting bracket which allows them to be dash mounted. When flush mounting, the optional GPS antenna may be needed to receive GPS satellite signals. Refer to the images below for Bracket and Flush mounting.

NOTE

The CPF180i and CPF300i are designed to be bracket and flush mounted. However when bracket mounting the CPF180i and CPF300i in an area where satellite reception is not possible with the internal antenna or when flush mounted, the optional GPS antenna must be installed.

2.1 BRACKET MOUNTING

Before installing ensure the area the bracket is mounted to is strong enough to support the weight of the GPS Chart Plotter especially while under way.

After the location is found, attach the mounting base to the area using the supplied hardware.

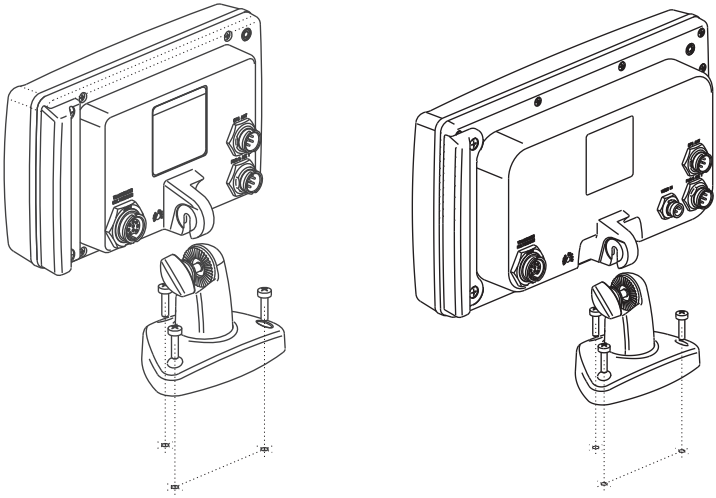


Figure 2.1 - Example of Bracket installation (CPF180i on the left side and CPF300i on the right side)

2.2 FLUSH MOUNTING

The CPF180i and CPF300i are supplied with a flush mount template for the cutout hole and screw holes required to install the GPS Chart Plotter.

NOTE

Before drilling holes make sure there is enough room to mount the GPS Chart Plotter and there are no obstructions.

1. After a location is found, peel the template label from the backing and apply the label to the mounting area.
2. Drill a hole in one area of the cutout area that will allow the blade of a jig saw to be inserted. Insert and cut out the area on the panel using the jig saw.
3. Next drill the four holes required to insert the GPS Chart Plotter with the mounting studs.
4. Install the mounting studs on the GPS Chart Plotter and insert into the mounting hole.
5. Attach the GPS Chart Plotter to the mounting location by attaching the supplied hardware to the mounting studs.

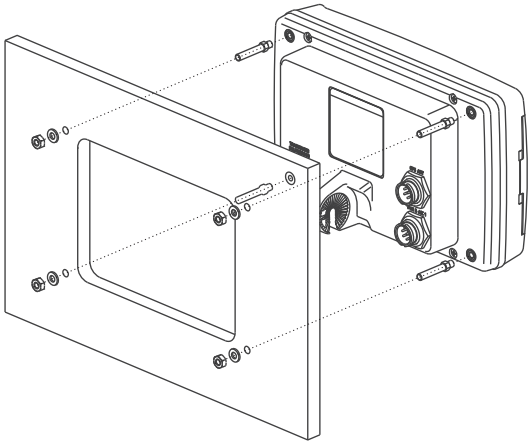


Figure 2.2 - Example of Flush installation CPF180i

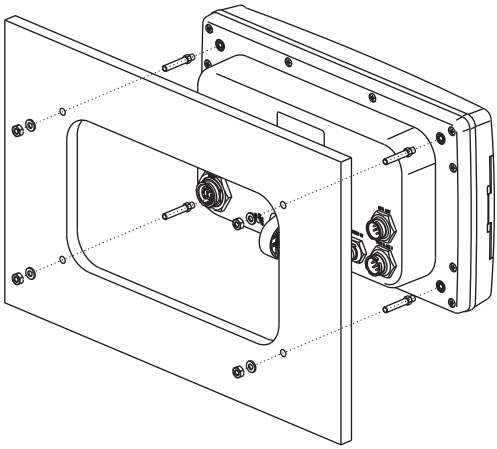


Figure 2.2a - Example of Flush installation CPF300i

2.3 MOUNTING THE OPTIONAL EXTERNAL GPS ANTENNA

An external WAAS GPS antenna is available when the CPF180i or CPF300i is flush mounted or mounted in an area where satellite reception is not possible with the internal antenna.This antenna is designed to be mounted on a base, installed on an extension or flush mounted.

Choose a location for the antenna that has a clear view of the sky and is not located within 3Feet of a Radar or other transmitting antennas. Ensure there are no major obstructions or fixtures in the immediate proximity to the antenna. The antenna relies on direct “line of sight” satellite reception. If you are unsure of the chosen location, temporarily mount the antenna in the desired location to verify correct operation. If mounted close to Radar, after the GPS Chart Plotter has a fix, turn on the Radar to ensure the GPS Chart Plotter holds the fix (use the GPS Status Page).

The thread used on the antenna is an industry standard (1inch 14TPI) used on a wide range of mounting brackets.

NOTE

The antenna cable can be cut and spliced to ease installation. Care must be taken when reconnecting the antenna cable to protect from water and corrosion.

2.3.0 Flush mounting the antenna

NOTE

Before drilling holes, it is recommended the antenna be positioned where the location is planned, cable connected to the GPS Chart Plotter and power turned on to ensure a GPS Fix is received.

1. Remove the threaded base from the antenna dome.
2. To ease installation a flush mounting template for the antenna has been included.
3. Apply the mounting template sticker to the area that was verified for GPS reception.
4. Then, drill out the 0.78" (20mm) and 0.13" (3.2mm) holes, and remove the template.
5. Insert the cable into the 0.78" (20mm) hole and route to the GPS Chart Plotter.
6. Apply a small amount or RTV to the underside of the antenna.
7. Place the antenna and then screw it into place using the screws.

NOTE

In some cases the screw may not be long enough. If this happens simply apply more RTV to the underside of the antenna to glue it into place.

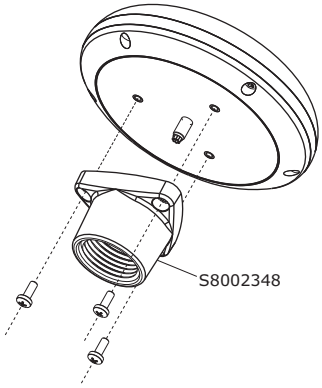


Figure 2.3.0 - Installing the External GPS antenna (I)

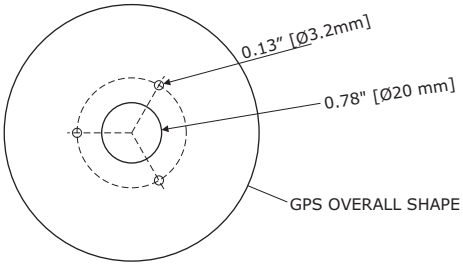


Figure 2.3.0a - Installing the External GPS antenna (II)

Smart GPS Cable

Pin	Wire Color	Description
1	Red	Battery Positive
2	Green	Smart GPS NMEA Input
3	Brown	Smart GPS NMEA Output
4		NC
5		NC
6	Black/Yellow	Battery Ground

2.4 CONNECTIONS

The CPF180i and CPF300i have connectors that allow them to be connected to a power supply, optional WAAS GPS antenna, NMEA Devices* such as Optional Video Camera (CPF300i only) VHFs, AIS Receiver, Digital Instruments and autopilots.

NOTE

The GPS Chart Plotter can send many sentences to external NMEA devices*. The NMEA Output wires are yellow and white (CPF180i and CPF300i) and white (CPF300i). If you have connected devices as shown in the following table and need to feed NMEA to other devices (Autopilot, RADAR…) you can parallel wires from the yellow, brown or white wires to other devices.

NOTE*

RS232 not opto-isolated electrical interface

2.4.0 CPF180i Connection Table

Power Data Cable

Pin	Wire Color	Description	Connection Example	Additional Comments
1	Black	Battery Ground	Connect to Battery Ground	
2	Red	Battery Positive	Connect to Battery Positive	
3	Green	NMEA Common	Common (ground) for NMEA devices**	
4	Blue	Port1 Input	Connect to Output of NMEA devices**	Default is NMEA0183
5	Brown	Port1 Output	Connect to Input of NMEA devices**	Default is NMEA0183 with GGA, GLL, RMC, DBT, DPT, MTW, VHW and XTE sentences
6	Grey	NC		
7	White	NC		
8	Yellow	Port 3 Output	Connect to Input of NMEA devices**	Default is NMEA0183 with APA, APB, BOD, GGA, GLL, RMC and XTE sentences*

***NOTE: AUTOPILOT CONNECTION**

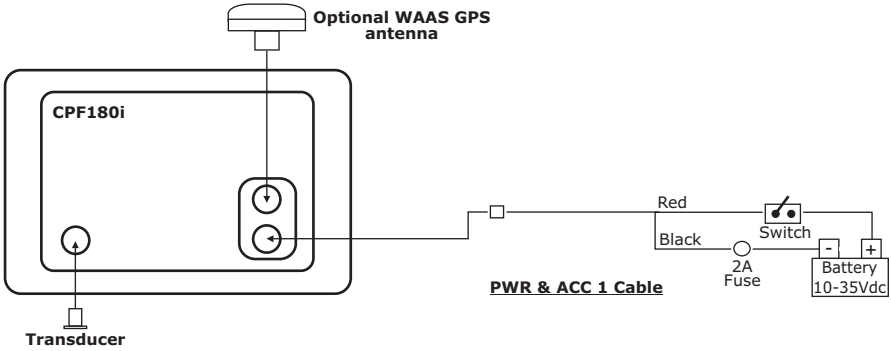
Care must be taken when connecting the GPS Chart Plotter to an Autopilot. Normally Port 3 (Yellow wire) will be used to connect to an Autopilot input, however older autopilots may not be able to read the sentences due to the talker ID that is being used (II Integrated Instrument). If the Autopilot connections are made to Port3 (Yellow wire) and the Autopilot is not reading the sentences, change the connections to Port1 (Brown wire) and change the sentences to APA, APB, BOD, GGA, GLL, RMC and XTE.

****NOTE**

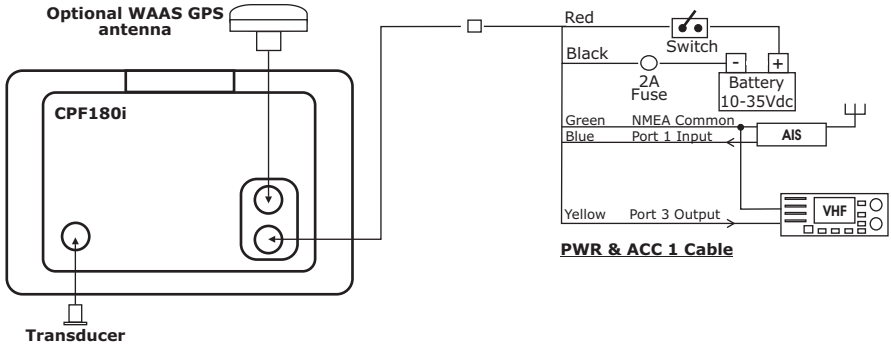
RS232 not opto-isolated electrical interface.

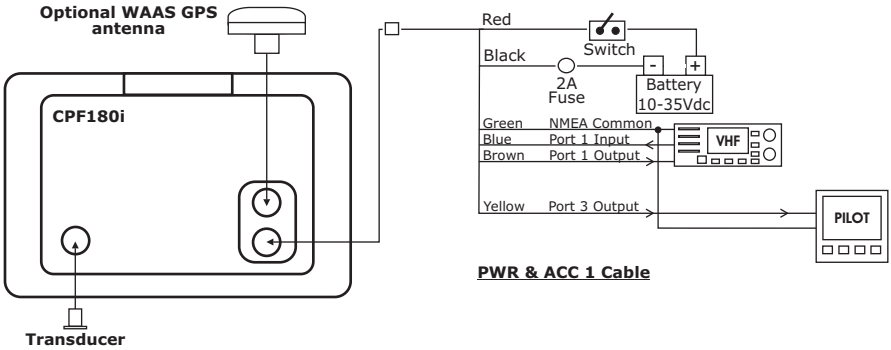
2.4.1 CPF180i Connections

2.4.1.0 DC Power Connection



2.4.1.1 Connection of the AIS Receiver, VHF and Autopilot





2.4.1.2 AIS Setup

The CPF180i has to be set up to be able to receive NMEA information from the AIS receiver. The GPS Chart Plotter reads the AIS NMEA message VMD, type 1, 2, 3 and 5 for AIS Class A and type 18, 19, 24 for AIS Class B. Select the used port and transmission speed by following the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **IN/OUT CONNECTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **PORT1 INPUT** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob up/down to select **AIS 38400** and press **[ENT]** or move the ShuttlePoint knob to the right.

NOTE

If an AIS receiver is not connected, Port1 Input can be connected to most DSC VHF's for position polling.

NOTE

The Input and Output baud rate for each port is set using the Advanced Setup>In/Out Connections menu. For example if Port1 is set for AIS 38400, the Input and Output both operate at 38400 baud.

2.4.2 CPF300i Connection Table

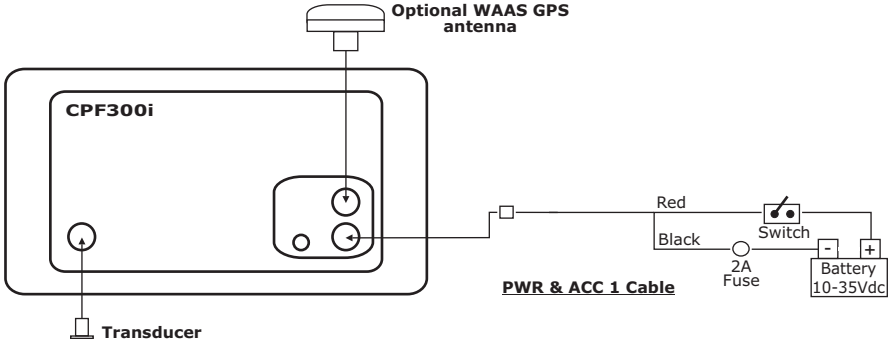
12VDC Power

Pin	Wire Color	Description	Connection Example	Additional Comments
1	Black	Battery Ground & Common for NMEA devices*	Connect to Battery Ground and and signal ground	
2	Red	Battery Positive	Connect to Battery Positive	
3	Green	Port3 Input	Connect to Output of NMEA devices*	Default is NMEA0183
4	Blue	Port1 Input	Connect to Output of NMEA devices*	Default is NMEA0183
5	Brown	Port1 Output	Connect to Input of NMEA devices*	Default is NMEA0183 with GGA, GLL, RMC, XTE, DBT, DPT, MTW, VHW sentences
6	Gray	Port2 Input	Connect to Output of NMEA devices*	Default is NMEA0183
7	White	Port2 Output	Connect to Input of NMEA devices*	Default is NMEA0183 with GGA, GLL, RMC and XTE sentences
8	Yellow	Port3 Output	Connect to Input of NMEA devices*	Default is NMEA0183 with APA, APB, BOD, GGA, GLL, RMC and BOD sentences

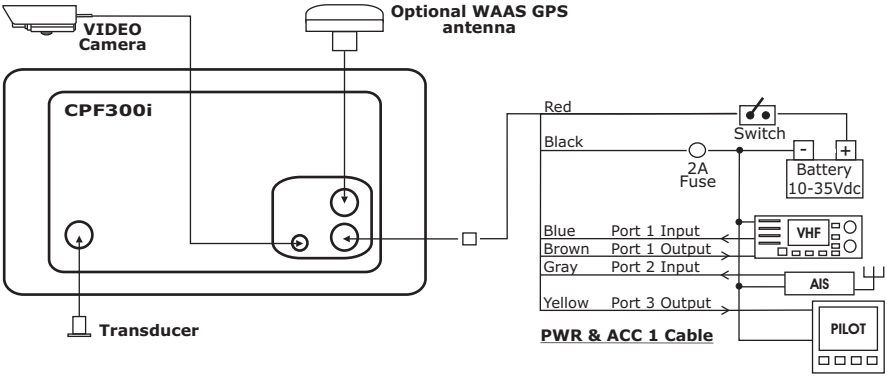
***NOTE**
RS232 not opto-isolated electrical interface.

2.4.3 CPF300i Connections

2.4.3.0 DC Power Connection



2.4.3.1 Connection a VideoCamera, AIS Receiver, VHF and Autopilot



NOTE

The Input and Output baud rate for each port is set using the Advanced Setup>In/Out Connections menu. For example if Port1 is set for AIS 38400, the Input and Output both operate at 38400 baud.

2.4.3.2 AIS Setup

The CPF300i has to be set up to be able to receive NMEA information from the AIS receiver. The GPS Chart Plotter reads the AIS NMEA message VMD, type 1, 2, 3 and 5 for AIS Class A and type 18, 19, 24 for AIS Class B. Select the used serial port and transmission speed by following the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **IN/OUT CONNECTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.

4. Move the ShuttlePoint knob to highlight **PORT2 INPUT** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob up/down to select **AIS 38400** and press **[ENT]** or move the ShuttlePoint knob to the right.

2.5 BATTERY CONNECTIONS

1. The GPS Chart Plotters are supplied with a fuse and holder. This fuse should be installed into the Black wire to protect the NMEA Output/Input circuits from possible damaged.
2. Connect the Red and Black wires from the GPS Chart Plotter to a 12VDC source as directly as possible.

2.6 NMEA CONNECTIONS

The GPS Chart Plotter can be connected to external devices with NMEA and display information, examples:

- DSC VHF Radio
- Depth Sounder, Speed Log, Wind Instrument, Autopilot etc.
- Radar (USA ONLY)
- Personal Computer
- AIS Receiver
- MOBILARM System

2.7 GPS POSITION ON A VHF RADIO

STANDARD HORIZON has pioneered Digital Selective Calling (DSC) on VHF radios. Advancements in DSC have made it possible to show the coordinates of a vessel that has transmitted a DSC Distress Call or even Polled the location of another vessel and show the position of that vessel on the display of STANDARD HORIZON VHFs.
STANDARD HORIZON has taken this feature one step further. If a CPF180i or CPF300i is connected to a DSC capable VHF, the vessel in Distress or the polled position of the vessel is shown on the display of the GPS Chart Plotter, making it easy to navigate to the location of the vessel. This is a great feature that could save someone's life or for anyone wanting to know the position of another vessel.

Other DSC VHF Manufactures

GPS Chart Plotter	Description	VHF
Green	NMEA Common Ground	Connect to NMEA Ground
Brown	NMEA Positive Output	Connect to NMEA Input
Blue	NMEA Positive Input	* Connect to NMEA Output (if available)

***** Some manufacturers of DSC VHF's are not capable of outputting NMEA DSC and DSE sentences to the CPF180i or CPF300i. Refer to the Owner's Manual and confirm the VHF can output NMEA DSC and DSE sentences.

NOTE

Refer to VHF Digital Selective Calling Section for operation.

2.8 RADAR ANTENNA (USA ONLY)

Please refer to Par. “1.3 Radar Unit supplied by SI-TEX USA”. The Radar antenna includes the necessary electronics to deliver Radar information to a compatible STANDARD HORIZON GPS Chart Plotter, and is supplied with mounting hardware kit, interconnection cable and a Radar Junction Box.
Please refer to the Radar Installation Manual and Radar Operation Manual available at www.standardhorizon.com.

2.9 PERSONAL COMPUTER CONNECTIONS

The GPS Chart Plotter can be connected to output Marks and Routes to many available PC programs. To send or receive User Points the PC Program must be able to receive NMEA WPL and RTE sentences. Refer to the table below for connection to a Serial DB9 connector.

Pin	PC DB9 connection	Port 1 connection
2	Receive	Brown
3	Transmit	Blue
5	Signal ground	Green

By default Port1 is set to receive or send User Points to and from a PC. The GPS Chart Plotter may be set up to send and receive the User Points on a different Port using the following procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **IN/OUT CONNECTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **SEND/REC RTE & MARKS** and press **[ENT]** or move the ShuttlePoint knob to the right to show the popup window.
5. Move the ShuttlePoint knob to desired Port and press **[ENT]**.

The PC COM settings are:

- Baud Rate : 4800
- Parity : None
- Data Bits : 8
- Stop Bits : 1
- Flow Control : None

The format of the sentences that are sent:

- MARK $GPWPL,3249.061,N,00710.651,E,MRK002*22
- WAYPOINT $GPWPL,3933.008,N,00639.969,E,WPT012*22
- ROUTE $GPWPL,2544.362,N,08011.672,W,WPT003*32
  $GPWPL,2543.921,N,08011.481,W,WPT004*31
  $GPWPL,2543.493,N,08011.768,W,WPT005*37
  $GPRTE,2,1,c,ROUTE01,WPT003,WPT004,WPT005*21

2.10 NMEA DATA PAGE

The NMEA Data page is very useful to see if an external device (example: Depth Sounder) is transmitting NMEA sentences to the GPS Chart Plotter. This page can also be used to

see if the GPS Chart Plotter NMEA Output is being loaded down by an external NMEA device the GPS Chart Plotter is connected to. Example: A VHF radio is connected but the radio is not receiving a GPS Position. Usually the VHF radio will be connected to the Green and Brown wires. To check to see if the GPS Chart Plotter is transmitting the sentences:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **NMEA DISPLAY** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **DATA** and press **[ENT]**.
3. The **NMEA DATA** page is shown.
4. Connect the Blue Wire on the GPS Chart Plotter to the junction of the Brown wire and the VHF wire. The display should look similar to the following picture.

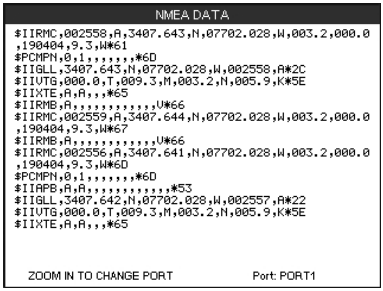


Figure 2.10 - NMEA Data page

2.11 CPF300i VIDEO INPUT

By accessing this menu it is possible to see images on the CPF300i display from an external video signal source, if connected to the CPF300i.
It allows the *"picture-in-picture"* functionality, so a Video Input image can be shown on a window and placed over the Chart, Navigation, Highway, Celestial and NMEA pages image at full screen.

NOTE

If the Video Input signals is not detected (E.g. the video camera is not connected to the Video Input connector), the VIDEO INPUT menu item will be grayed out.

Video Connector

Pin	Description	Connection Example
1	Ground	Connect to Video Signal Ground of DVD/VCR/Video Cameras
2	+ 9 / 12 VDC	Connect to Video Cameras Power Input
3	Video Signal +	Connect to Video Signal + (NTSC/PAL) of DVD/VCR/Video Cameras

2.11.0 Video Camera Input

The CPF300i has one connection for video camera. Any NTSC or PAL camera will operate correctly. To connect use the video output of the camera and connect to the optional ACVC10 cable.

2.11.1 VCR or DVD Input

A VCR or DVD may be connected to Video port. The CPF300i does not have speakers so

the audio from the VCR or DVD would have to be routed to a stereo system. STANDARD HORIZON offers an optional cable called ACVC10 that allows any VCR or DVD to simply be plugged into the CPF300i.

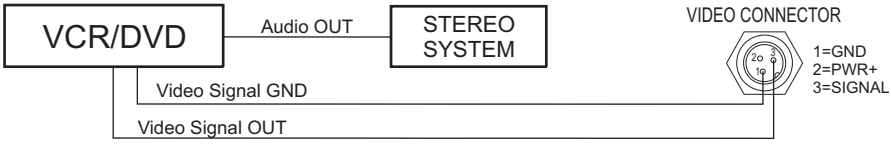


Figure 2.11.1 - VCR/DVD Input

The CPF300i has the capability to select the Video Input in three ways.

I. From the menu

1. Press **[MENU]**. Move the ShuttlePoint knob to highlight **SETUP** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **VIDEO INPUT** and press **[ENT]** or move the ShuttlePoint knob to the right. A menu appears with the following options:
   a. **ACTIVATE VIDEO**, the possible choices are Full Screen View, PiP (Picture in Picture) View and Auto Switch (*).
      If **Full Screen View** is chosen, the GPS Chart Plotter will show a warning message with the instructions to adjust the image from the Video Input. If the user agrees to proceed, the image from the video input will be shown.
      If **Picture in Picture (PiP) View** is chosen, a Video Input image can be shown on a window and placed over the selected page at full screen. By moving the ShuttlePoint knob, the PiP image is moved. When the focus is on the PiP image, press **[CLR]** to close the PiP image.
      If **Auto Switch** is chosen, all the menus will be closed and the video input will be shown switching between the Video Input Full View (if connected) and the selected page. See next section for details of setting up the switching times. If the user agrees to proceed, the image from the Video Input and the CPF300i page will be shown intermittently. The intermittence time is selected by Switching Timeout item.
   b. **SWITCHING TIMEOUT**, the possible choices are 5,10,30 sec, 1, 5, 10 min. Allows selecting the timing to change from Video Input and CPF300i display.
   c. **RESTORE DEFAULTS**, allows restoring the factory defaults for the Input picture adjustment. When Restore default is executed, the message “OK” is shown next to the selected menu item.

NOTE (*)

If the video signal is not present on the video connector, the corresponding item in the menu will be shown with a light color (to identify that the option is not available).

II. Quick Activation by pressing [CLR] for 1 second

Pressing and holding **[CLR]** for 1 second from the Chart page Display or from any main page (Navigation, Highway, Celestial, GPS Status, DSC, NMEA DISPLAY); the following Soft Keys are shown: **[Full Screen], [PiP View], [Auto Switch]**. If no video signal is detected on the Video Input connector, the Soft Keys will be shown in light color in order to identify that they are not active.

III. Quick Activation by Soft Keys

It is possible to assign the Video Input mode to any of the Soft Keys. Press one of the Soft Keys, the Soft Keys functions are shown. Pressing and holding for 1 second one of the Soft Keys, the Soft Keys customization list will be shown. By selecting **VIDEO** option it will be possible to assign the Soft Key to execute the Video Input function. Once the Soft Key has

been assigned to Video Input, its label will show the message **[VIDEO]**. If **[VIDEO]** is pressed, the Soft Keys will be assigned this way: **[FULL SCREEN], [PIP VIEW], [AUTO SWITCH]**. From now on, the functioning is identical to case II.

NOTE

When the PIP video window is shown, the ShuttlePoint knob can be used to move the position of the PIP window or move the cursor around the Chart page. By default the PIP window is controlled by the ShuttlePoint knob. To change so the chart cursor can be moved, press any Soft Key, then press [VIDPAGE]. To change back to control the PIP window press any Soft Key, then press [VIDPAGE] again.

NOTE

When the PIP window is shown, the cursor and the vessels position may be shown under the PIP window.

2.12 DEMO MODE (FOR DEALER USE)

In Demonstration Mode the GPS Chart Plotter automatically places a Destination point on the Chart page and simulates navigation to the point. Also, the active page displayed on the screen changes every 10 seconds.The pages are shown in the following order: Start-up screen, GPS Status page, Chart/Compass tape page, Chart/Fish Finder page, Fish Finder Full page, Radar page, Navigation page, Highway Page, Celestial page, NMEA Display page.

NOTE

This mode is used by dealers to promote the features of the CPF180i or CPF300i when on a retail shelf.

The Demo mode can be selected from the Simulation Menu following the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **SIMULATION** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **DEMO MODE** and press **[ENT]** or move the ShuttlePoint knob to the right to show the popup window.
5. Move the ShuttlePoint knob to select **ON** and press **[ENT]** or move the ShuttlePoint knob to the right.
6. Demo mode is now activated.

Once the Demo Mode is enabled, it is possible to temporally exit Demo Mode by pressing a key and return to the GPS Chart Plotter normal operation. If a key in not touched for 30 seconds the Demo Mode will re-start.
To disable the Demo Mode follow the procedure above selecting **OFF** at point 5.

3. CONTROLS AND INDICATORS

NOTE

This section defines each control of the CPF180i or CPF300i. For instructions, refer to Getting Started and Advanced Settings sections of this Owner's Manual.

NOTE

Throughout this Owner's Manual same conventions are used. See the legend below:

[MENU] If you see brackets around a bold and capital letter word this refers to a key press.

[CHART] If you see brackets around a bold and small capital letter word this refers to a Soft Key press.

GENERAL SETUP When a word(s) is bold capital letters and underlined, this refers to a menu selection item.

3.0 CONTROLS AND CONNECTIONS

The CPF180i or CPF300i is controlled by using the keys located on the front panel. These labeled keys are dedicated to specific functions. As you press a key, a single audio beep confirms the key action; every time a key press is not valid, three rapid beeps sound to indicate that the key action is not valid. There is also a ShuttlePoint knob to move the cursor across the screen.

The ZOOM IN and ZOOM OUT keys
Pressing **[ZOOM IN]** shows more detail of a smaller area, by changing the chart scale and zooming in on your display. Press **[ZOOM OUT]** to change the scale and show a wider, otherwise less detailed view. Pressing and holding **[ZOOM IN]/[ZOOM OUT]** allows for quick zoom, that is the fast change of the chart scale where only the land areas are drawn. When **[ZOOM IN]/[ZOOM OUT]** is released all chart details are shown.

NOTE

The GPS Chart Plotter contains a Worldwide background that allows you to zoom in to 2NM. For more detail, a C-MAP BY JEPPESEN NT+/MAX C-CARD must be purchased and installed.

The ShuttlePoint knob
The ShuttlePoint knob moves the cursor around the Chart Page (cursor mode) and highlights menu items. It changes the GPS Chart Plotter from Home mode to Cursor mode on the Chart Screen. For a detailed explanation of Cursor VS Home mode refer to Par. 3.1.1.

The ENT key
Press **[ENT]** to select the desired option or to confirm the selection.

The CLR key
When on the Chart Page, press **[CLR]** to set Home Mode, clear a selected function, leave a menu, step backwards in a menu or exit a menu.

The MENU key
Selects the Main Menu. When in the Setup Menu mode, moving the ShuttlePoint knob to the right enters a selection and moving the knob to the left clears the function.
Pressing and holding **[MENU]** for 3 seconds allows you to change the fields contained within

the data windows while on the Chart, Navigation, Highway, GPS Status or NMEA Display page.

The GOTO key
This key is very useful when you desire to start navigating (goto) to a destination point. When pressed, a popup window will be shown allowing you to select to start navigating to the Mark, a Route or the position of the cursor.
To stop navigation to a point, press **[GOTO]** and select Stop in the popup window.

The MARK key
This key places a Mark under the ship's position when in Home Mode. When the cursor is shown and **[MARK]** is pressed it will place a Mark under the location of the cursor.

The ROUTE key
When pressed places a Waypoint. Succeeding presses place more Waypoints to form a Route.

The PWR key (Backlight and Contrast)
Press and hold **[PWR]** to turn the GPS Chart Plotter On or Off. Once on, press **[PWR]** to show and change the Contrast and Backlight settings.

The MOB key
When pressed the GPS Chart Plotter automatically places a Mark on the Chart Page under the boat's position to aid in the rescue or a person that may have fallen aboard. To stop navigating, press **[GOTO]**, select **STOP** and press **[ENT]**.

The FIND key
A dedicated key that allows searching the optional C-MAP BY JEPPESEN NT+/MAX C-CARD for Port Services, Ports, Tide Stations, Wrecks, Obstructions, Points Of Interest, Lakes Information, Lakes By Name, User Points, GPS Coordinates or Information on any point on the chart.

3.0.0 The CPF300i Soft Keys

The 6 keys in the bottom of the front panel (hereinafter named Soft Keys) have different functions associated depending on the software: their labels are shown on the screen immediately above the soft keys (the user can customize the function associated with each soft key).

The Soft Keys
These keys allow quick selection to the many pages the GPS Chart Plotter has. These keys can be customized to your preference, however from the factory the keys are preprogrammed with the following pages. From left to right VIDEO, NAV, HIGHWAY, CELEST, CHART, LIST. Press any of the keys and you will see popup windows above the keys. To goto a specific page press the key with the desired popup window. The popup windows will automatically disappear if a key is not pressed or can be removed by pressing **[CLR]**.

3.1 GETTING STARTED

The Getting Started section will take you through the frequently used operations and assist you to customize the look of the GPS Chart Plotter.

3.1.0 Power On, Off and ShuttlePoint Knob operation

1. Press and hold **[PWR]** until the display shows the Start-Up page (see the following picture). To turn Off, press and hold **[PWR]** until the display turns Off.

Figure 3.1.0 - Example of Start-Up page on CPF180

2. When the power is first turned on two pages the start-up page and the Caution pages are briefly shown before the GPS Status page.

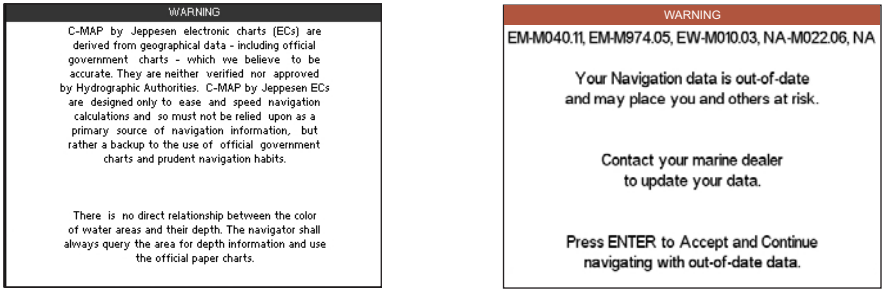

WARNING
C-MAP by Jeppesen electronic charts (ECs) are derived from geographical data - including official government charts - which we believe to be accurate. They are neither verified nor approved by Hydrographic Authorities. C-MAP by Jeppesen ECs are designed only to ease and speed navigation calculations and so must not be relied upon as a primary source of navigation information, but rather a backup to the use of official government charts and prudent navigation habits.
There is no direct relationship between the color of water areas and their depth. The navigator shall always query the area for depth information and use the official paper charts.
WARNING
EM-M040.11, EM-M974.05, EW-M010.03, NA-M022.06, NA
Your Navigation data is out-of-date and may place you and others at risk.
Contact your marine dealer to update your data.
Press ENTER to Accept and Continue navigating with out-of-date data.

Figure 3.1.0a - Example of Caution pages

NOTE

The Caution page on the left is shown only if the data C-CARD is over one year old.

3. When the GPS Chart Plotter is first turned on it will take some time for the GPS to acquire a fix of your position. Look closely at the GPS Status page and you will see satellites and relative signal strengths of each satellite. After a fix is received the GPS Chart Plotter will automatically switch to the Chart Page with the ship icon centered on the screen.

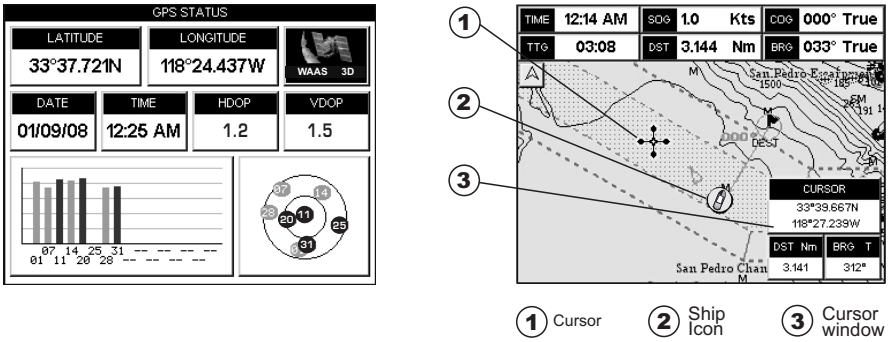


Figure 3.1.0b - GPS Status and Chart pages

4. On the Chart page the ShuttlePoint knob is used to pan around the chart. Move the ShuttlePoint knob to the left and you will notice a cross hair ⊹ appear, this is called the cursor.
5. When you move the ShuttlePoint knob you will notice DST and BRG values in the Data window change. This shows the Distance and Bearing from the GPS Fix of your vessel to the position of the Cursor.
6. If the cursor is moved to the edge of the screen the GPS Chart Plotter will automatically pan in the desired direction.

3.1.1 Cursor Vs. Home Mode

Cursor Mode

When the ⊹ cursor is shown on the Chart Page, the chart plotter is in Cursor Mode. In Cursor Mode the position of the vessel will not stay in the center of the page and will move right off the edge of the screen (as your boat moves). Cursor Mode allows you to pan around and look at areas on the chart. In this mode you can also create Marks, Routes, measure distance and bearings from your current position.

Home Mode

When the ship icon is shown on the Chart Page (cursor is not shown) you are in Home Mode. Now as the ship moves through the water the vessels position will be kept in the center of the display.

NOTE

To change from Cursor Mode to Home Mode press **[CLR]**.

3.1.2 Cursor and Menu selection speed

The CPF180i and CPF300i allow you to control the speed the Cursor moves when the ShuttlePoint knob is pressed. To change the speed:

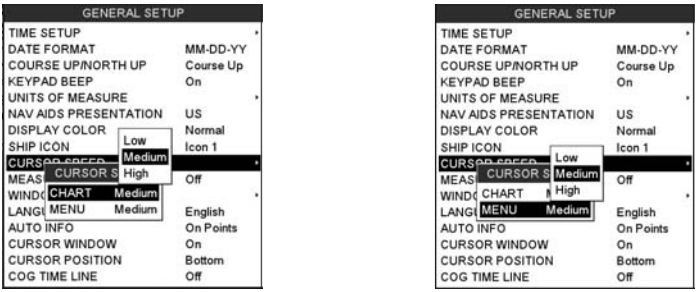


Figure 3.1.2 - Cursor Speed menu

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **CURSOR SPEED** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows two selections, Chart and Menu which allow the Cursor Speed to be selected as High, Medium or Low on the Chart Page or within the menus.
5. With **CHART** or **MENU** selected, press **[ENT]** or move the ShuttlePoint knob to the right. Move the ShuttlePoint knob to the desired setting and press **[ENT]** or move the ShuttlePoint knob to the right.
6. Press **[CLR]** until the menu disappears or an easier method is to press the ShuttlePoint knob to the left a few times.
7. Move the cursor on the Chart Page and see if the speed is to your liking.

3.1.3 Changing the Ship Icons

The cursor may be changed to any of the following. The default setting is Icon 6.

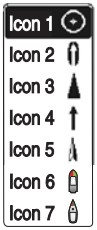


Figure 3.1.3 - Ship icons

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **SHIP ICON** and press **[ENT]** or move the ShuttlePoint knob to the right to show the popup window with ship icons.
4. Move the ShuttlePoint knob to select the desired icon and press **[ENT]** or move the ShuttlePoint knob to the right to select a new icon.
5. Press **[CLR]** or move the ShuttlePoint knob to the left to exit the menu and show the Chart Page.

3.1.4 Changing the backlight and contrast

With the CPF180i and CPF300i turned on, briefly press **[PWR]** to show the backlight and contrast popup window. Move the ShuttlePoint knob to the left or right to adjust the LCD backlight intensity or up or down to change the LCD contrast. Press **[ENT]** to set.

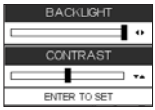


Figure 3.1.4 - Backlight and Contrast adjustment

3.1.5 Selecting North Up or Course Up

The default selection is **COURSE UP**: the top of the Chart page oriented so it will always show the area ahead of the direction your vessel is travelling.

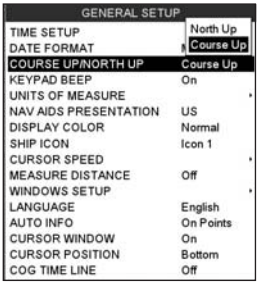


Figure 3.1.5 - Course Up/North Up menu

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **COURSE UP/NORTH UP** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Another popup window will be shown with **NORTH UP** and **COURSE UP**, move the ShuttlePoint knob to the desired selection and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Press **[CLR]** or move the ShuttlePoint knob to the left to exit the menu and show the Chart page.

NOTE

When the CPF180i and CPF300i are in Course Up mode a small arrow icon Ⓐ will be shown on the Chart page indicating North.

3.2 AUTOMATIC TIME

The time information supplied by the GPS satellites is in Universal Time Coordinates (UTC or Greenwich England Mean Time). To change the GPS Chart Plotter to read the correct time, first you must figure out the offset and if it is Daylight Savings Time. For example on the West coast of the United States or Pacific Standard Time the offset needed would be –08:00 or –07:00 for Daylight Savings Time, Eastern Standard Time –05:00 or –04:00 for Daylight Savings Time.

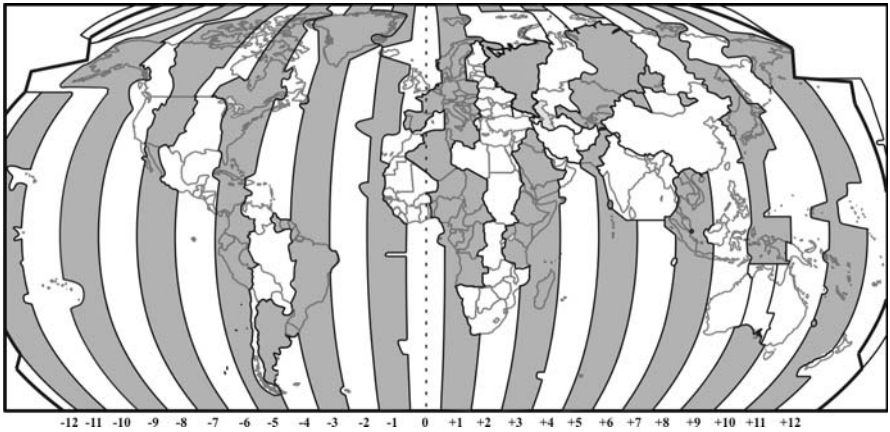


Figure 3.2 - Adjusting Time

The Time Setup menu allows you to enter a time zone offset for your location, selection to automatically adjust the time for daylight savings and to configure the time in 12 or 24 hour formats.

Figure 3.2a - Time Setup menu

NOTE

By setting the time in the steps below, the time shown on the Celestial page is automatically set up.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **TIME SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **TIME ZONE** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Look at the table and find the time zone for your area. Move the ShuttlePoint knob up or down to select the desired zone and press **[ENT]**.
6. Next move the ShuttlePoint knob to highlight **DAYLIGHT SAVING** and press **[ENT]** or move the ShuttlePoint knob to the right.
7. Daylight Saving menu has 3 options:
   - 7.1 **OFF** Select Off when your location does not recognize Daylight Savings Time;
   - 7.2 **ON** Select On to manually turn Daylight Savings Time On. This is the default

selection;

7.3 **AUTO** When selected the Daylight Savings Time offset is automatically changed.

8. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart Page is shown.

3.3 SELECTING LORAN TD OR OTHER COORDINATE SYSTEM

The GPS Fix coordinates can be changed to show Latitude/Longitude, Loran TDs or UTM. Below is the window that will appear when customizing the Coordinate System.

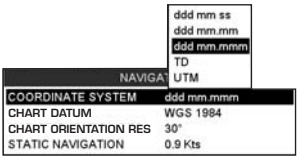


Figure 3.3 - Coordinate System menu

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **NAVIGATE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **COORDINATE SYSTEM** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob to highlight the desired coordinate type and press **[ENT]** or move the ShuttlePoint knob to the right.
6. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page is shown.

NOTE

If the TD is selected, you should set the Chain, Pair, ASF1, ASF2 and Alter. If the TD numbers are not correct the Pair letters may be backwards. Reversing the two letters usually solves this issue. Example: Y/Z change to Z/Y.

3.4 CHANGING THE CHART COLOR

The CPF180i and CPF300i have preprogrammed settings allowing you to customize the look of the Chart page.The default is Sunlight, however there are other settings: Classic, NOAA, Night and Normal. Night is very useful during evening hours so not to impair night vision.

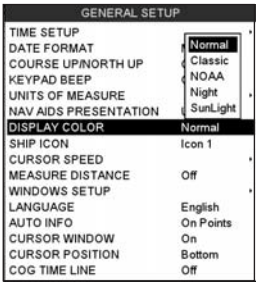


Figure 3.4 - Display Color menu

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.

2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **DISPLAY COLOR** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. A popup window will be shown with **Normal**, **Classic**, **NOAA**, **Night** and **Sunlight**. Move the ShuttlePoint knob to the desired selection and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Press **[CLR]** or move the ShuttlePoint knob to the left to exit the menu and show the Chart page.

3.5 SELECTING LANGUAGE

To ease operation in different countries, the software includes translation and display of the following 16 languages:

- English
- German
- Swedish
- Danish
- Finnish
- Japanese
- Italian
- Spanish
- Portuguese
- Dutch
- Russian
- French
- Norwegian
- Chinese (Traditional)
- Greek
- Chinese (Simplified)

The translations are included in Menu descriptions, Soft Key labels and on Info Functions to ease operation. See also Par. 6.0.7.

Set the language to be displayed on menus, data pages, warning/alarm messages, full/quick info, list of objects found by find/nearest function, and on charts (such as place's names and buoy's names and so on). The selection now includes the capability to display languages in non-Latin characters (UNICODE format). To select the language you want:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **LANGUAGE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Another popup window will be shown with the available languages, move the Shuttle-Point knob to the desired language and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Press **[CLR]** or move the ShuttlePoint knob to the left to exit the menu and show the Chart page.

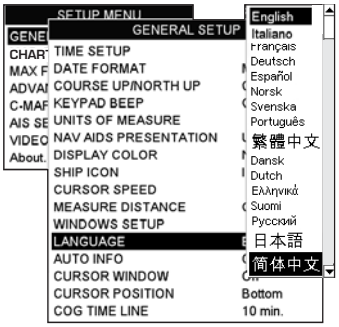


Figure 3.5 - Language Selection menu

NOTE

If the selected language is not available on cartographic data, English is used.

WARNING

If you have accidentally selected a language and are unable to return to the Language Selection menu, perform the following procedure:

a. Select the Chart page.
b. Press **[MENU]** two times, move the Shuttlepoint knob to highlight the first (top) selection in the menu and press **[ENT]**.
c. Move the Shuttlepoint knob to highlight the **LANGUAGE** item and press **[ENT]**.
d. A language window will be shown, select your language and press **[ENT]**.

3.6 SELECTING PAGES USING SOFT KEYS ON CPF300i

The Soft Keys located under the LCD on the CPF300i are used to select the pages quickly without the need to go into the menu. The default pages are VIDEO, NAV, HIGHWAY, CELESTIAL, CHART and LIST.
When one of the Soft Keys is pressed popup windows above each Soft Key are shown with the key description. Press the Soft Key with the desired page description and the GPS Chart Plotter will change to that page.

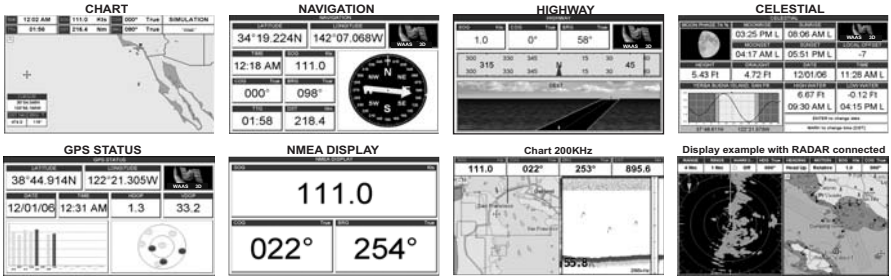


Figure 3.6 - Screen display pages

3.7 CUSTOMIZING THE SOFT KEYS ON CPF300i

The Soft Keys (CPF300i) can be individually customized from the default pages (discussed above) to the following: CHART, DUAL CHART, CHART/COMPASS, CHART/HIGHWAY, NAVIGATION, HIGHWAY, CELESTIAL, GPS STATUS, DSC LOG, DSC DIRECTORY, NMEA DISPLAY, NMEA DATA, DEPTH TREND, WIND SPEED TREND, TEMP TREND, SOG TREND, MARKS/WAYPOINTS, USER C-CARD, AIS LIST, FIND , VIDEO INPUT, 50kHz FULL PAGE, 200kHz FULL PAGE, 50kHz/CHART PAGE or 200kHz/CHART PAGE. Also when a SI-TEX RADAR antenna is connected (USA ONLY), any Soft Key can be customized to show Radar pages, RADAR FULL, RADAR/CHART, RADAR OVERLAY and RADAR/FISH FINDER.

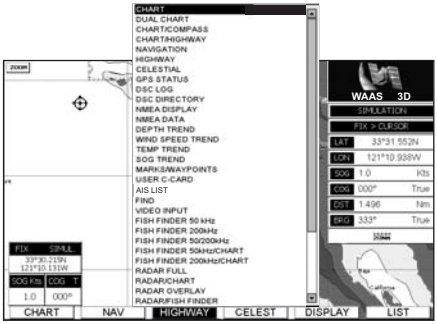


Figure 3.7 - Window options of the selected Soft Key on CPF300i

1. To change, momentarily press any of the Soft Keys, then press and hold the Soft Key you want to customize.
2. A popup window will be shown with the above settings.
3. Move the ShuttlePoint knob up or down to select the desired page.
4. Press **[ENT]** or move the ShuttlePoint knob to right to save the page to the selected Soft Key.

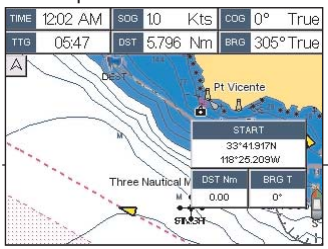
3.8 SETTINGS IN GENERAL SETUP MENU

The **GENERAL SETUP** menu has other selections that allow you to customize the display. All selections are listed below:

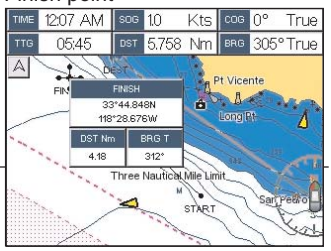
TIME SETUP	Select the **Time Zone offset**, enable or disable **Daylight Savings Time** and select the **Time Format** and switch between 12 or 24 hours time format.
DATE FORMAT	Select the Date format among **MM-DD-YY** (default), **DD-MM-YY** or **YY-MM-DD**.
COURSE UP/NORTH UP	Select **North Up** (the top of the page is fixed to North) or **Course Up** (the top of the page is orientated to the direction the vessel is heading. This is the default).
KEYPAD BEEP	Allows the beep produced when a key is pressed to be turned On (default) or Off.
UNITS OF MEASURE	Units of Measure can be selected for **Distance***, **Speed**, **Depth**, **Altitude** and **Temperature**.
NAV AIDS PRESENTATION	Allows the Nav Aids presentation to be drawn using NOAA symbology when **US** (default) is selected or International symbols when **International** is selected. When selected these functions affect how the icons for Lights, Signals, Buoys and Beacons are displayed.
DISPLAY COLOR	Changes the background colors of the chart page to enhance the visibility of the screen depending on the surrounding light conditions. **Normal** is recommended when the GPS Chart Plotter is not exposed to the direct sunlight. When this mode is set the charts are displayed in order to use colors as similar as possible to ones used in the original paper charts. **Classic** uses vivid chart colors presentation. **NOAA** allows setting NOAA paper chart colors presentation. **Night** is recommended when the environment is dark in order to reduce the glare of the display. The GPS Chart Plotter displays charts and screen in darker colors. **SunLight** (default) is designed to enhance the visibility of the screen when the GPS Chart Plotter is exposed to sunlight. The charts are much brighter than in the other modes and the depth areas are filled with the white color so different depth areas are not easily distinguishable.
SHIP ICON	Select from a variety of ship icons that represent your vessels position on the Chart Page. The default is Icon 6.
COMPASS ROSE	Allows selection of compass direction indication around ship icon. The default is On.

CURSOR SPEED	Selects the speed among **Low**, **Medium** (default) and **High** for the cursor in the CHART page and within the MENU.
MEASURE DISTANCE	When this function is On, and the ShuttlePoint knob is moved to a location where you want to start measuring a distance and press **[ENT]**. Move the ShuttlePoint knob to move the cursor to a second location where you want to finish measuring a distance and press **[ENT]**. A line will appear between the Start and Finish points and a popup window will be shown indicating the distance and bearing from the Start and Finish points. Press **[ENT]** to delete both points (Off is the default).

START point

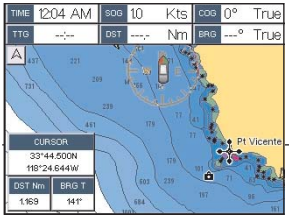


Finish point

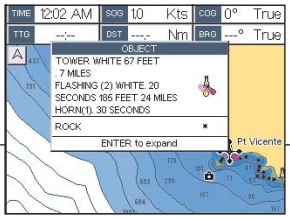


WINDOWS SETUP	This menu selection allows the data windows to be customized on the CHART PAGE and NAVIGATION PAGE (refer to section 12.0.0).
LANGUAGE	Allows changing the language for menus and data screens.
AUTO INFO	When the cursor is moved over a buoy, Mark or other item a popup window will show information of the item. This menu item allows the window to be turned Off, **On Points** (default) or **On All**.

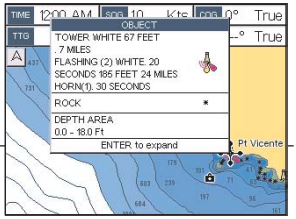
Auto Info OFF



Auto Info ON POINTS

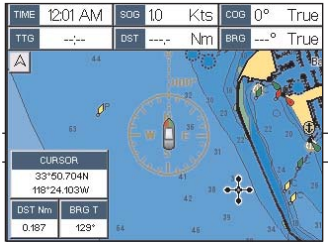


Auto Info ON ALL

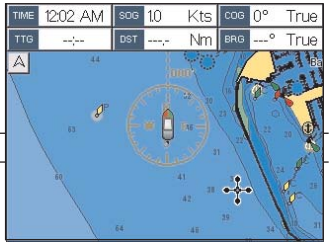


CURSOR WINDOW	By default when the cursor is moved a window is shown with the Lat/Lon Distance and Bearing from the vessels location to the cursor. This selection allows the window to be turned On (default) or Off. The Cursor Window is automatically disabled when General is set in Windows Setup option.

Cursor Window ON



Cursor Window OFF



CURSOR POSITION	The position of the cursor can be customized so it is centered in the middle (if **Center** selected) or centered on the bottom of the Chart page (if **Bottom** selected, default).
COG TIME LINE	It is a line projected from the ship icon which indicates the distance your vessel will travel at the current speed. Selections are 2, 10 (default), 30 minutes, 1, 2 hours and infinite.

NOTE*

The available Units of Measure for Distance are: Nm, Sm, Km, Nm+Ft, Nm+m. Note when “Nm+Ft” is selected if the distance is less than 1.0 Nm, it turns to Feet. When “Nm+m” is selected if the distance is less than 1.0 Nm, it turns to Meters.

3.9 ABOUT PAGE

From Main Menu page it is possible to select the About page containing Software, Chart and optional devices information.

(1) Software System Information

(2) Cartography Information

(3) Storage Capacity

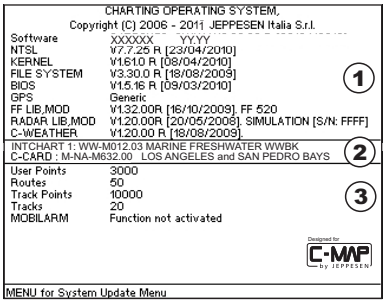

CHARTING OPERATING SYSTEM,
Copyright (C) 2006 - 2011 JEPPESEN Italia S.r.l.
Software XXXXXX YY.YY
NTSL V7.7.25 R [23/04/2010]
KERNEL V1.61.0 R [08/04/2010]
FILE SYSTEM V3.30.0 R [18/08/2009]
BIOS V1.5.16 R [09/03/2010]
GPS Generic
FF LIB,MOD V1.32.00R [16/10/2009]. FF 520
RADAR LIB,MOD V1.20.00R [20/05/2008]. SIMULATION [S/N: FFFF]
C-WEATHER V1.20.00 R [18/08/2009].
INTCHART 1: WW-M012.03 MARINE FRESHWATER WWBK
C-CARD : M-NA-M632.00 LOS ANGELES and SAN PEDRO BAYS
User Points 3000
Routes 50
Track Points 10000
Tracks 20
MOBILARM Function not activated
1
2
3
MENU for System Update Menu

Figure 3.9 - Example of About page

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **About...** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. The Information page appears on the screen (see the previous Figure).
4. Press **[CLR]** or move the ShuttlePoint knob to the left to exit and show the Chart page.

4. FIND SERVICES

4.0 USING FIND SERVICES & MORE FUNCTIONS

The CPF180i and CPF300i have a dedicated **[FIND]** key that allows searching the optional C-MAP BY JEPPESEN NT+/MAX C-CARD for Port Services, Ports, Tide Stations, Wrecks, Obstructions, Points Of Interest, Lakes, User Points, GPS Coordinates or Information on any point on the Chart.

4.0.0 Port Services

This feature is used to locate Port Services nearest the position of your vessel.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **PORT SERVICES** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown with a list of different Port Services. The table below shows a list of the available Port Services:

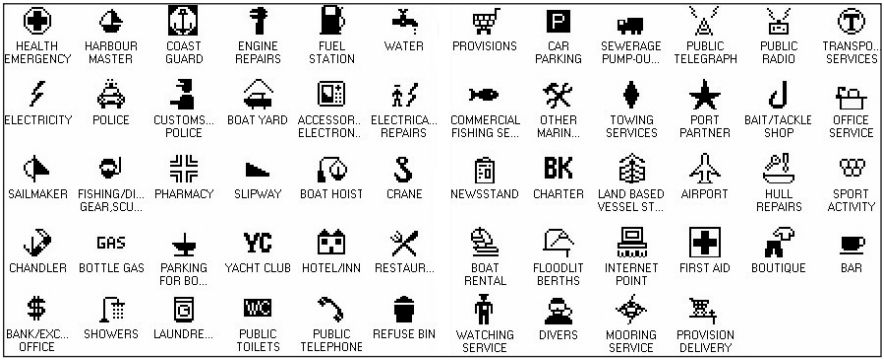


Figure 4.0.0 - Port Services Table

4. Move the ShuttlePoint knob to highlight the desired type of service and press **[ENT]**.
5. Another popup window will appear displaying the distance and position of the services closest to your location.
6. Using the ShuttlePoint knob, highlight the desired service and press **[ENT]**. This will show information about the service.
7. Press **[CLR]** to show the actual position of the service on the Chart Page.
8. Press **[CLR]** again at any time to return your cursor to your vessel's position.

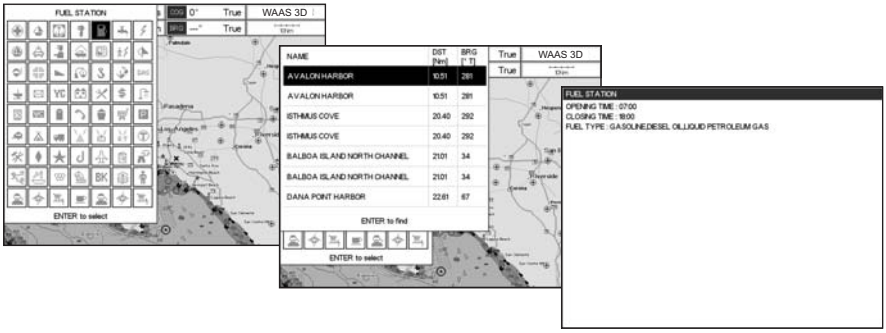


Figure 4.0.0a - Find Port Services

4.0.1 Port

This feature is used to locate the 10 nearest Ports to the position of your vessel.

A Port is represented with a on the Chart page.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **PORT** and press **[ENT]** or move the Shuttle-Point knob to the right.
3. A popup window will be shown with a list of nearest Ports.
4. Move the ShuttlePoint knob to highlight the desired Port and press **[ENT]**.
5. Another window will appear displaying the details of the selected Port.
6. Press **[CLR]** to show the actual position of the Port on the Chart Page.
7. Press **[CLR]** again at any time to return your cursor to your vessel's position.

NAME
DST [Nm]
BRG [° T]
WAAS 3D
AVALON HARBOR
AVALON HARBOR DEPARTMENT
ENTER to find
MENU to Find Port by Name
PORT/MARINA
NAME : AVALON HARBOR DEPARTMENT
INFORMATION : PUMP-OUT STATION/PROVISIONS: BAIT, GROCERIES, ICE, MARINE
ACCESS : NO WAKE ZONE
SPEED LIMIT : 4 Knots
NUMBER OF BERTHS : 400
MAXIMUM LENGTH ALLOWED : 98 Feet
TELEPHONE NUMBER : 310-510.0535
VHF CHANNEL : 12/16
FAX : 510.2640
ADDRESS : ONE PLEASURE PIER 90704
P.O. BOX : 1065
E-MAIL : HARBORPATROL@CITYOFAVALON.COM
WEB SITE : WWW.CITYOFAVALON.COM
CITY : AVALON
INTERNET CONNECTION : CONNECTION TO INTERNET NOT AVAILABLE

Figure 4.0.1 - Find a Port

4.0.2 Tide Stations

This feature is used to locate the 10 nearest Tide Stations to the position of your vessel. Once a Tide Station is selected the Tide Graph can be used to determine Tide height and draught of the Tide based on a user-specified time.

A Tide Station is represented with a on the Chart Page.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **TIDE STATIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown with a list of nearest Tide Stations.

4. Move the ShuttlePoint knob to highlight the desired Tide Station and press **[ENT]**.
5. Another window will be shown detailing the selected Tide Station information.
6. Press **[CLR]** to show the actual position of the Tide Station on the Chart Page.
7. Press **[CLR]** again at any time to return your cursor to your vessel's position.

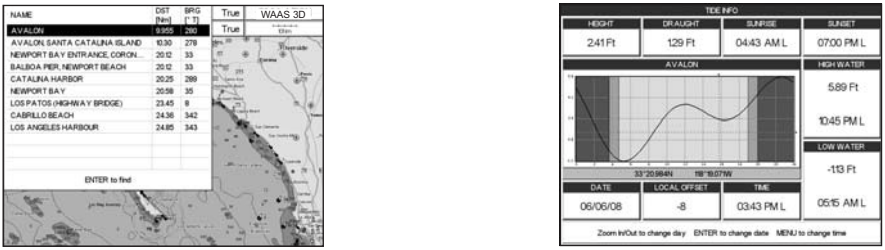


Figure 4.0.2 - Tide Stations

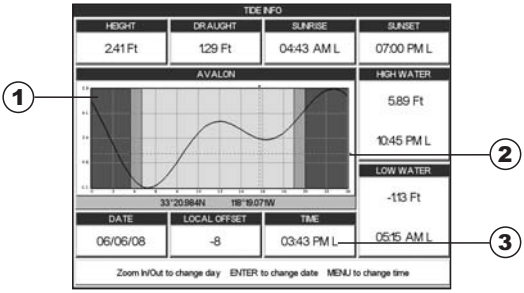


Figure 4.0.2a - Tide Graph page

Refer to the image above. The time (3) displayed corresponds to the location of the cross-hair cursor (2) in the Tide Graph (1). Moving the ShuttlePoint knob to the left or right changes the time, and moving the ShuttlePoint knob up or down selects the Tide height and Tide draught on the Tide Graph.

NOTE

The Local Offset matchs the Time Offset entered in the Time Setup menu (see Par. 3.2)

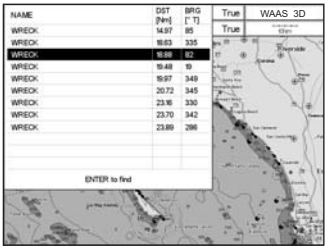
4.0.3 Wrecks

This feature is used to locate the 10 nearest Wrecks to the position of your vessel. A Wreck is represented with an icon on the chart. See the following table:

ICON	DESCRIPTION
	non-dangerous wreck
	dangerous wreck
# Foul	distributed remains of wreck
Masts	wreck showing mast/masts
	wreck showing any portion of hull or superstructure

Figure 4.0.3 - Wreck icons Table

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **WRECKS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown with a list of nearest Wrecks.
4. Move the ShuttlePoint knob to highlight the desired Wreck and press **[ENT]**.
5. Another window will be shown detailing the Wreck information.
6. Press **[CLR]** to show the actual position of the Wreck on the Chart Page.
7. Press **[CLR]** again at any time to return your cursor to your vessel's position.



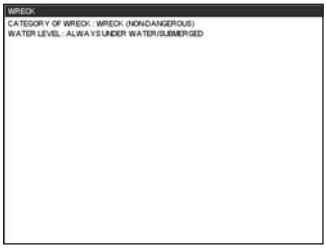


Figure 4.0.3a - Find Wrecks

4.0.4 Obstructions

This feature is used to locate the 10 nearest Obstructions to the position of your vessel. An Obstruction is represented with an icon on the chart, see the following table:

ICON	DESCRIPTION
Obstn	snag/stump
Mast (12) Wk	wellhead
#	diffuser
#	crib
	fish haven
	foul area
# Foul	foul ground
	ice boom
4 Obstn	ground tackle

Figure 4.0.4 - Obstruction icons Table

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **OBSTRUCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown with a list of nearest Obstructions.
4. Move the ShuttlePoint knob to highlight the desired Obstruction and press **[ENT]**.
5. Another window will be shown detailing the Obstruction information.
6. Press **[CLR]** to show the actual position of the Obstruction on the Chart page.
7. Press **[CLR]** again at any time to return your cursor to your vessel's position.

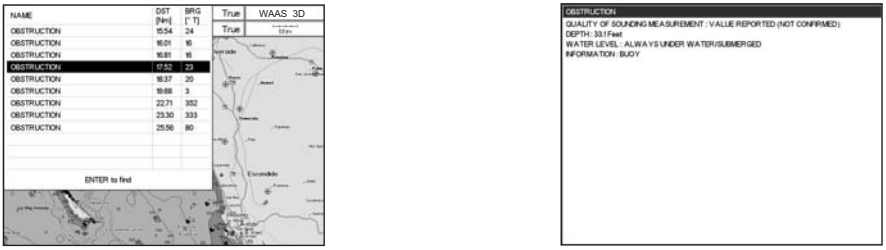


Figure 4.0.4a - Find Obstructions

4.0.5 Lakes Information

This feature is used to find information on the 10 closest Lakes near the position of your vessel.

A Lake Info is represented with a ⓘ on the Chart Page.

NOTE

An optional MAX Lake CARD must be inserted into the GPS Chart Plotter to take advantage Lakes Information. The available MAX Lake CARDs are: NA-M017 USA: North; NA-M018 USA: East;NA-M019 USA: South; NA-M020 USA: West; NA-M029: Alaska; NA-M048: Canada.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **LAKES INFORMATION** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown with a list of Outdoor Recreational Area objects.
4. Move the ShuttlePoint knob to highlight the desired object and press **[ENT]**.
5. Another popup window will appear displaying the distance and position of the Lakes closest to your location.
6. Using the ShuttlePoint knob, highlight the desired Lake and press **[ENT]**. This will show information on the Lake.
7. Press **[CLR]** to show the actual position of the Lake on the Chart Page.
8. Press **[CLR]** twice to return your cursor to your vessel's position.

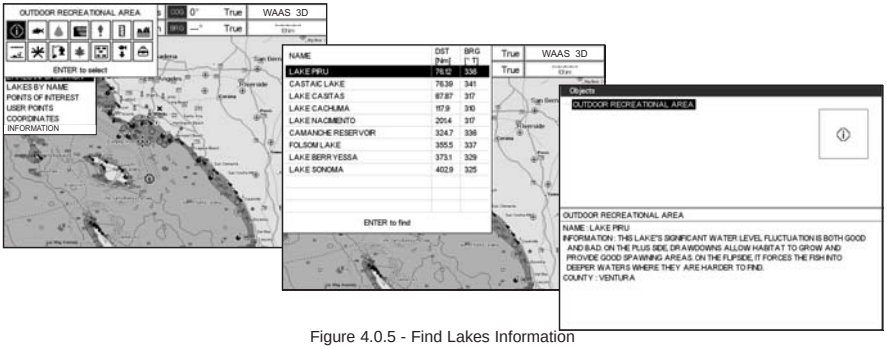

OUTDOOR RECREATIONAL AREA
ENTER to select
LAKES BY NAME
POINTS OF INTEREST
USER POINTS
COORDINATES
INFORMATION
NAME
DIST [Nm]
BRG [° T]
LAKE PIRU 76.2 336
CASTAIC LAKE 76.9 341
LAKE CASITAS 87.87 317
LAKE CACHUMA 97.9 310
LAKE NACIMIENTO 204 317
CAMANCHE RESERVOIR 324.7 336
FOLSOM LAKE 355.5 337
LAKE BERRYESSA 373.1 329
LAKE SONOMA 402.9 325
ENTER to find
True
WAAS 3D
Objects
OUTDOOR RECREATIONAL AREA
OUTDOOR RECREATIONAL AREA
NAME : LAKE PIRU
INFORMATION : THIS LAKE'S SIGNIFICANT WATER LEVEL FLUCTUATION IS BOTH GOOD AND BAD. ON THE PLUS SIDE, DRAWDOWNS ALLOW HABITAT TO GROW AND PROVIDE GOOD SPAWNING AREAS. ON THE FLIPSIDE, IT FORCES THE FISH INTO DEEPER WATERS WHERE THEY ARE HARDER TO FIND.
COUNTY : VENTURA

Figure 4.0.5 - Find Lakes Information

4.0.5.0 Quick Info On Lakes

Upon viewing the chart of a lake, you can click on the Lake Info icon to query the available information immediately displayed with many details. For example, see the following picture:

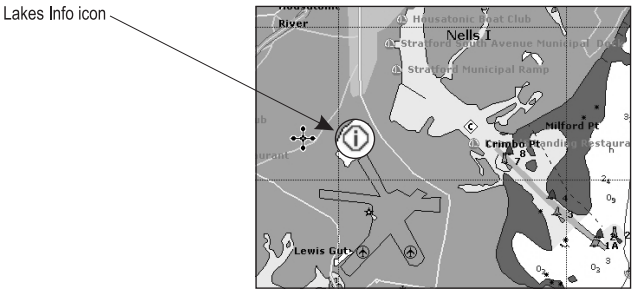


Figure 4.0.5.0 - Example of Lakes info

When the cursor is placed over the icon, the icons of the available services are shown:

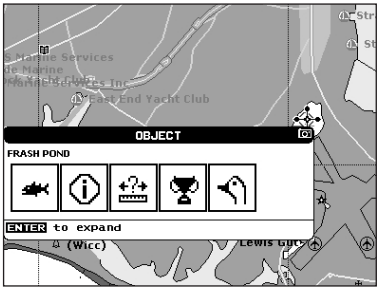


Figure 4.0.5.0a - Quick Info: available services

If you press **[ENT]** all available information about the cartographic point under the cursor will be shown. See the next paragraph.

4.0.5.1 Full Info On Lakes

The following is an example of Full Info on Lakes:

Figure 4.0.5.1 - Example of Full Info page

To see the "Fishing" object press **[MENU]** (when the "Fishing" object is highlighted). On the screen appears:

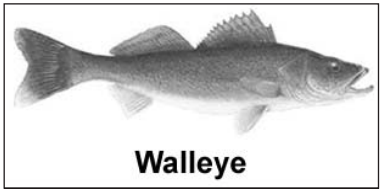


Figure 4.0.5.1a - Example of picture associated to the Fishing object

4.0.6 Lakes By Name

This feature is used to locate Lakes By Name nearest the position of your vessel.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **LAKES BY NAME** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown with a list of nearest Lakes.

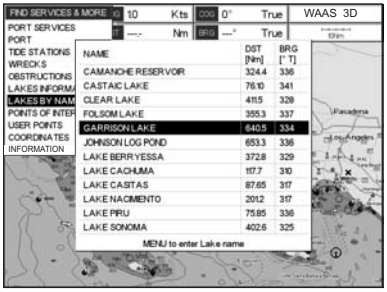


Figure 4.0.6 - Find Lakes By Name

4. Move the ShuttlePoint knob to highlight the desired Lake. Otherwise press **[MENU]** to enter the desired Lake name. A window will be shown: move the ShuttlePoint knob to highlight the edit of Lake name and press **[ENT]** to accept: another popup window will appear displaying the distance and position of the Lake.
5. Press **[ENT]** to show the actual position of the Lake on the Chart Page.
6. Press **[CLR]** twice to return your cursor to your vessel's position.

4.0.7 Points Of Interest

This feature is used to locate Points Of Interest nearest the position of your vessel.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **POINTS OF INTEREST** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A (Category) popup window will be shown with a list of Category types (i.e. attractions, emergency, entertainment).
4. Move the ShuttlePoint knob to highlight the desired Category and press **[ENT]**.
5. A (Type) popup window will be shown with a list of types.
6. Move the ShuttlePoint knob to highlight the desired Type and press **[ENT]**.
7. A popup window will be shown with a list of nearest Points Of Interest that fall into the Category and Type you have selected.

8. Move the ShuttlePoint knob up/down to highlight the desired Point Of Interest and press **[ENT]**.
9. Another window will be shown with detailing the Point Of Interest information.
10. Press **[CLR]** to show the actual position of the Point Of Interest on the chart page.
11. Press **[CLR]** again at any time to return your cursor to your vessels position.

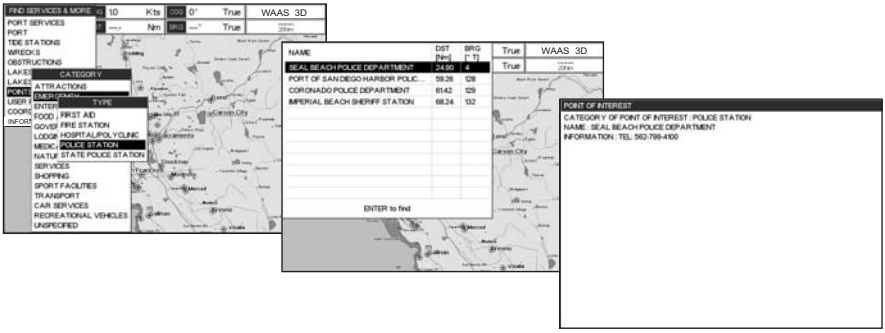


Figure 4.0.7 - Find Points Of Interest

4.0.8 User Points

This feature is used to search for User Points (Marks and Waypoints you have created and stored) by name quickly and efficiently.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. The (Select Name) popup window will appear. This window will allow you to enter in the name of the User Point you wish to locate.
4. Move the ShuttlePoint knob up/down to change each number or letter and left/right to move to the next or previous position in the name of the Mark.
5. Once the name of the desired Mark reads in the (Select Name) window, press **[ENT]** to show the location the Mark on the Chart page.
6. Press **[CLR]** at any time to return your cursor to your vessels position.

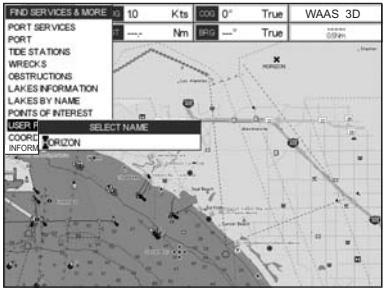


Figure 4.0.8 - Find User Points (Marks and Waypoints)

4.0.9 Coordinates

This feature allows you to enter Coordinates (Latitude/Longitude) and view the entered position on the Chart Page.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **COORDINATES** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A (Coordinate) popup window will be shown to allow you to enter in a specified Latitude and Longitude.
4. Move the ShuttlePoint knob up/down to change each number or letter and left/right to move to the next or previous position in the Coordinates.
5. Once the Coordinates are entered, press **[ENT]** to show the location the Mark on the Chart page.
6. Press **[CLR]** at any time to return your cursor to your vessel's position.

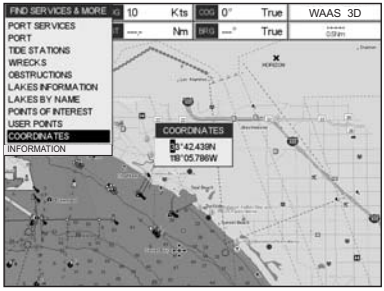


Figure 4.0.9 - Find GPS Coordinates

4.0.10 Information

This feature allows you to obtain information on any position on the Chart page.

1. Press **[FIND]**.
2. Move the ShuttlePoint knob to highlight **INFORMATION** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. A page will be shown with objects information. The upper side of the page contains the Info Tree and the lower side contains the expanded information. While moving the ShuttlePoint knob through the Info Tree, all the relevant information of the selected object is shown on the lower part of the page.
4. Press **[CLR]** again at any time to return your cursor to your vessel's position.

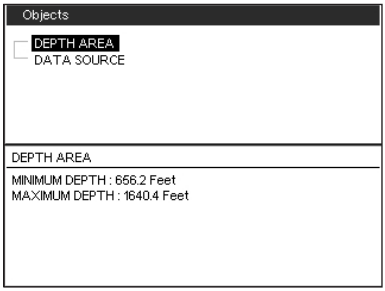


Figure 4.0.10 - Find Information

5. MAX CARTOGRAPHY OVERVIEW

5.0 INSERTING THE C-CARD

Hold the C-CARD by the long inclined side so that you can see the C-MAP BY JEPPESEN label.

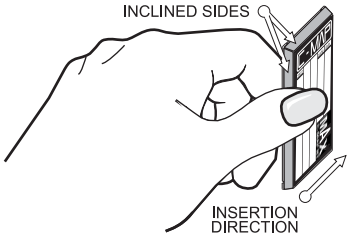


Figure 5.0 - Inserting C-CARD

Open the door, gently push the C-CARD into the slot: push the C-CARD in as far as it will go, then close the door.

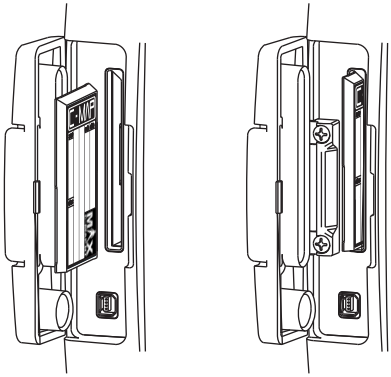


Figure 5.0a - Inserting C-CARD (details)

NOTE

The small connector below the C-CARD is only used by Standard Horizon repair technicians.

Key points are:

Data Features

- **ISO Certification** *(electronic chart production process with quality certification)*
- **Extra Large Coverage** *(all the C-Map electronic chart detail and a huge coverage without having to change cartridge)*
- **Official data source** *(data based on use of official data sources Hydrographic Offices Release)*
- **Detailed World Background** *(worldwide background chart with details)*

- **Depths & Land Elevation** *(color shading of sea depth and land altitude for improved chart appearance)*
- **Bathymetric & Spot Soundings** *(Data Base with depth and bathy information for an extraordinary view of the seabed depth)*
- **Detailed Port Plan to information** *(complete port and marina charts with detail)*
- **Search & Find** *(quickly locates chart contents and objects)*
- **Tides Preview** *(allows viewing of current, future and past tide cycles of specific NOAA Tide Stations)*
- **Dynamic Currents** *(current arrows showing speed and direction of current, future and past currents)*
- **Dynamic Nav-Aids** *(selection to enable the Nav-Aids to blink to their specifications and appear on the chart in color)*
- **Port Info** *(searchable data base of service in ports)*
- **Enhanced Port Info & Roads** *(searchable data base of detailed information that include facilities and services in ports and surrounding areas)*
- **Object Info** *(moving cursor over object to show restricted area details and related information)*
- **Quick Info** *(moving cursor over wrecks, shoals, Nav-Aids to show restricted area details and related information and object to show details)*
- **Photos & Diagrams** *(high definition pictures of ports, piers, bridge diagrams and nav-aids)*
- **Multilanguage Support** *(allows the plotter to show language of your choice in using proper character set for Asian and other countries)*
- **True-Type Font** *(improves text on chart for optimal reading)*

Presentation Features

- **Clear View** *(advanced legibility techniques providing more chart data on the screen)*
- **Clear Info** *(sophisticated "Human Dictionary" to translate Nav-Aid abbreviations found on paper charts)*
- **Flexi-Zoom** *(increased Under and Over Zoom between chart levels, resulting in optimal scale display for any situation)*
- **Perspective View** *("Real World" perspective view of the chart, updated real-time during navigation)*
- **Enhanced Mixing Levels** *(seamless data presentation)*
- **Off-line redraw** *(cartography level transition without image construction)*

Cartographic Data related Features

- **Guardian Alarm** *(the Guardian Alarm is a user defined area in front of your vessel to alert you while navigating of possible obstacles on the chart)*
- **Safety Status Bar** *(a status bar with six boxes to show the status of certain functions. Any warning or alarm condition is identified by the red color to indicate possible risk)*
- **Safety Route Check** *(sophisticated function that checks for dangerous objects along your navigation route)*

MAX and NT/NT+ C-CARD coexistence

- When NT+ data and MAX data cover different areas, the GPS Chart Plotter receives data from both charts (depending on the current position).
- When NT+ data and MAX data cover the same area, the GPS Chart Plotter receives data only from MAX chart.

6. MAP FUNCTIONS

6.0 MAX FUNCTIONS MENU

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right. The MAX Functions menu appears on the screen:

MAX FUNCTIONS	
ZOOM TYPE	Standard
ICONS SIZE	Standard
PLACE NAMES SIZE	Standard
PERSPECTIVE VIEW	Off
DYNAMIC NAV-AIDS	On
SAFETY STATUS BAR	Off
SATELLITE IMAGERY	On
CURRENTS PREDICTION	
CHART LANGUAGE	

Figure 6.0 - Max Functions Menu

The available Max Functions menu is described in the following.

6.0.0 Zoom Type

Zoom Type refers to the chart scale selection. It has two options: Standard (default) or Flexi-Zoom. When Zoom Type is set to Flexi-Zoom, a short **[ZOOM IN]/[ZOOM OUT]** push causes a change of chart level, while a long **[ZOOM IN]/[ZOOM OUT]** push (press and hold) causes an expansion or compression of the chart image, without a chart level change.

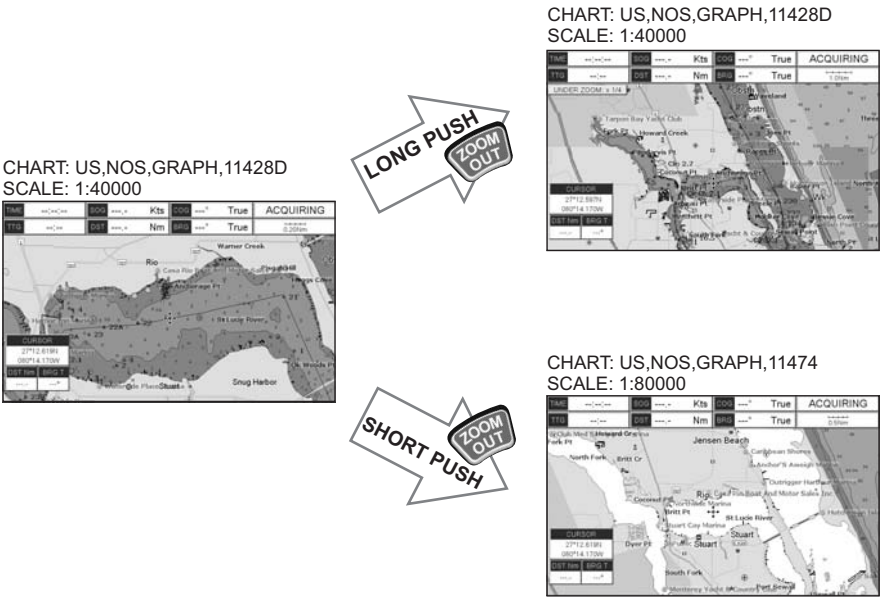


Figure 6.0.0 - Zoom Type on CPF300i

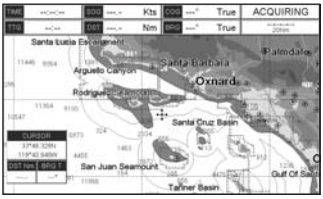
Note that in the top of the previous picture the chart scale remains the same but it is graphically compressed.
By pressing **[ZOOM IN]/[ZOOM OUT]** a popup window is displayed on a corner of the chart screen. The window shows the current zoom factor: Normal is the original chart level (1:1 scale), Over-Zoom x2, x4, x16, x32, Under-Zoom x1/2, x1/4.

To activate this function follow the procedure:
1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **ZOOM TYPE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows two selections, **STANDARD** or **FLEXI-ZOOM**.
5. Move the ShuttlePoint knob to select the selection and press **[ENT]**.
6. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left a few times.

6.0.1 Icon Size

On MAX charts it is possible to set the size of all icons drawn on the charts, selecting between Standard (default) and Large size.

ICONS SIZE standard



ICONS SIZE large

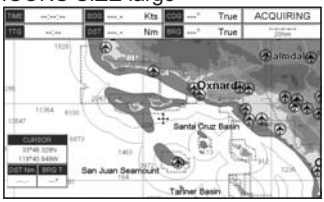


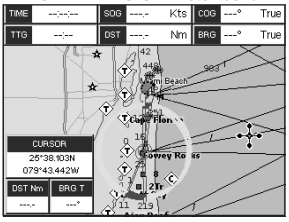
Figure 6.0.1 - Icons Size

To activate this function follow the procedure:
1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **ICONS SIZE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows two selections, **STANDARD** or **LARGE**.
5. Move the ShuttlePoint knob to select the selection and press **[ENT]**.
6. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left a few times.

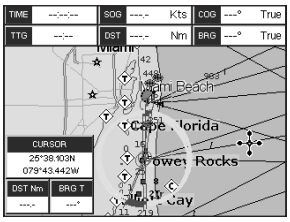
6.0.2 Place Name Size

On MAX charts it is possible to set the size of all names drawn on the charts, selecting between Standard (default), Medium and Large size.

PLACE NAMES SIZE standard



PLACE NAMES SIZE medium



PLACE NAMES SIZE large

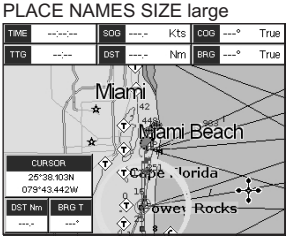


Figure 6.0.2 - Place Names Size

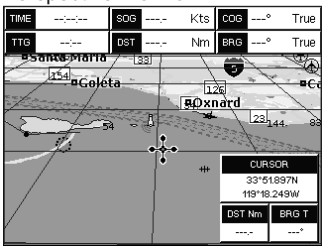
To activate this function follow the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **PLACE NAMES SIZE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows three selections, **STANDARD**, **MEDIUM** or **LARGE**.
5. Move the ShuttlePoint knob to select the selection and press **[ENT]**.
6. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left a few times.

6.0.3 Perspective View

The Chart page may be show in a perspective (fly over) or normal mode during navigation. Perspective view of the chart is a type of “bird’s eye” view of a chart, and give you a more realistic perspective of the chart. As the upper side of the chart is more compressed than the lower side, a wider chart area is visible, so it allows showing more chart information immediately ahead and around the cursor.

Perspective View ON



Perspective View OFF

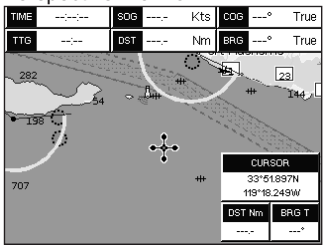


Figure 6.0.3 - Perspective View

To activate this function follow the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **PERSPECTIVE VIEW** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows two selections, **ON** or **OFF**.
5. Move the ShuttlePoint knob to select the selection and press **[ENT]**.
6. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left until the chart page is shown.

6.0.4 Dynamic Nav-Aids

This function allows the blinking of the Nav-Aids to be turned On or Off. The blink period and color of each Nav-aid is read from the Nav-Aid attributes stored on the optional C-MAP BY JEPPESEN C-Card. When the ship is inside the Nav-Aid nominal range, the light of the Nav-Aid will start blinking. When Dynamic Nav-Aids option is set to On, when the flashing light is Off, or when fix position is out of the sector, the light color is displayed by using a faint light color.

To activate this function follow the procedure below:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **DYNAMIC NAV-AIDS** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows two selections, **ON** or **OFF**.
5. Move the ShuttlePoint knob to select the selection and press **[ENT]**.
6. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left until the chart page is shown.

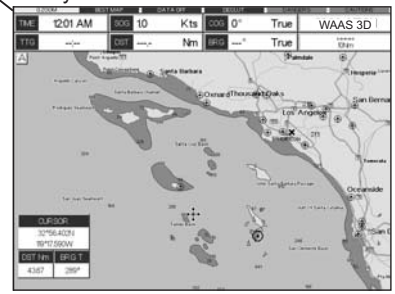
6.0.5 Safety Status Bar (DSI - **D**ata **S**afety **I**ndicator)

When the Safety Status Bar is enabled, a status bar with six boxes show the status of certain functions. Any warning or alarm condition is identified by the red color to indicate possible risk.

To activate this function follow the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **SAFETY STATUS BAR** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows the following selections: **ON** (The Safety Status Bar is shown), **OFF** (The Safety Status Bar is not shown), **ICON** (The Safety Status Bar is not shown, but a Warning alarm Icon is shown on the corner of the chart page as soon as any item controlled by the DSI function returns an alarm condition. The Warning Icon remains displayed until the alarm condition persists. Placing the cursor over this Icon, a quick help message is shown next to the Icon, allowing the Safety Status Bar to be shown. In this case - when the Safety Status Bar is opened via Warning alarm Icon - it is allowed to obtain information about each “active” Safety Status box (the red ones): it is possible to select them by ShuttlePoint knob movement left/right, and a list of active alarms is shown underneath the selected box. By pressing **[CLR]**, the Safety Status Bar is removed from the screen.
5. Move the ShuttlePoint knob to select the selection and press **[ENT]**.
6. Press **[CLR]** until the menu disappears or an easier method is to press the ShuttlePoint knob to the left a few times.

Safety Status Bar



(1) **Normal:** when the chart is displayed at normal scale.

U. Zoom: red when the chart is under-zoomed out more than twice normal scale, gray otherwise.

O. Zoom: red when the chart is over-zoomed in more than twice normal scale, gray otherwise.

No Chart: red when the chart is zoomed in more than twice normal scale, gray otherwise.

(2) Red when a more detailed chart is available under the cursor position.

(3) Red when at least one of the following objects or layers is turned off (by the user) Depths/soundings; Wrecks/obstructions; Tracks/routes; Attention Areas; Nav-Aids.

(4) Displays red when clearing overlapping objects.

(5) Red when "Guardian Technology" detects one of the following objects: Land, Intertidal, Depth Area, Rocks, Obstructions, Shoreline Constructions, Fishing Facility, Wrecks, Dragged area, Diffusion area, Mooring facilities, Pingos and Production installations.

(6) Red when "Guardian Technology" detects cautionary or restricted area.

Figure 6.0.5 - Safety Status Bar

6.0.6 Satellite Imagery

This function allows to overlay the Satellite image for background chart. When it is set On, the Palette is set to Normal to display the proper colors.

NOTE

The satellite image is only shown on 100NM, 50NM and 20NM scales.

To activate this function follow the procedure below:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **SATELLITE IMAGERY** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. The menu now shows two selections, **ON** or **OFF**.
5. Move the ShuttlePoint knob to select the selection and press **[ENT]**.
6. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left until the chart page is shown.

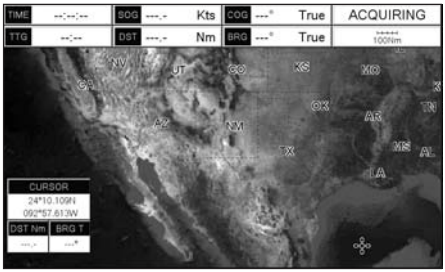


Figure 6.0.6 - Example of Satellite Imagery on CPF300i

6.0.7 Currents Prediction

The worldwide database with Tidal stream information is available with MAX C-CARDs. When data/time is available, Tidal stream arrows are shown on the charts, indicating the direction and strength of the Tide:

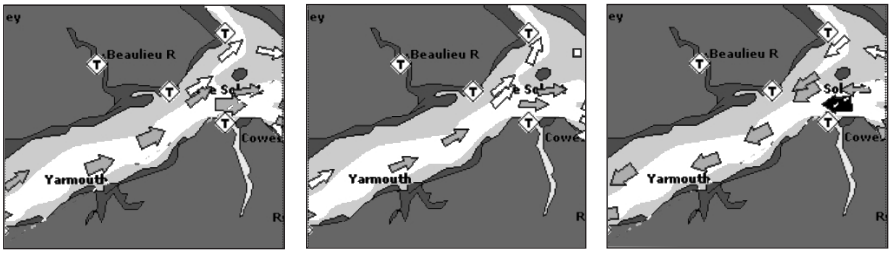


Figure 6.0.7 - Tidal stream arrows

If no data/time is available from the GPS or the GPS Chart Plotter is not in Simulation mode, the icon on the chart is generic one. The color of the arrow denotes the strength of the current as follows:

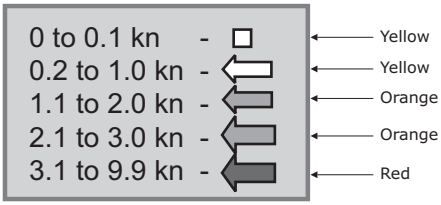


Figure 6.0.7a - Tidal stream arrows table

When the GPS Chart Plotter receives a valid position fix, the Tide icons are shown on the charts on the basis of the current date and time: the screen displays and changes arrows as date/time changes.

It is possible to see the variation of the Tidal arrows on the selected area at any given time. To activate this function follow the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **CURRENTS PREDICTION** and press **[ENT]** or

move the ShuttlePoint knob to the right.

4. A window is shown on the low-left side of the chart. On the CPF300i press **[SET TIME]** to set the date and time manually, and **[INCR. TIME]/[DECR. TIME]** to decrease/increase time; press **[EXIT]** to exit. On the CPF180i press **[ENT]** to set the date and time manually, and **[GOTO]/[MENU]** to decrease/increase time; press **[CLR]** to exit.

6.0.8 Chart Language

The CPF180i and CPF300i may be customized to show the local language of the chart. To select the Chart Language you want:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MAX FUNCTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **CHART LANGUAGE** and press **[ENT]** or move the ShuttlePoint knob to the right. A new popup window will appear on the screen. The available functions are described in the table below.

Language	:	Allows setting the language to display chart information. The language is chosen among the list of languages available on the cartographic data (data cartridge or embedded charts).
Mode	:	Defines how objects are translated. Selections are: Off : Enables the language chosen in the Language menu above. If the selected language is not present on the objects information, English is used. English : Always uses English. Local : Uses the Local language present on C-MAP BY JEPPESEN C-CARD. If no Local language is available, English is used.

4. After the selection is made, press **[CLR]** repeatedly or move the ShuttlePoint knob to the left repeatedly until the Chart page is shown.

NOTE

a. When the Chart Language is changed, the following settings are automatically selected: MODE is set to Off and Chart Language is set to your selection.
b. If the C-CARD is removed or changed, the Chart Language should be confirmed and changed if necessary.

6.0.9 Pictures or Diagrams

Using optional C-MAP BY JEPPESEN MAX data cards allows you to show pictures or diagrams on the CPF180i and CPF300i display. These *Pictures* are typically used to facilitate the identification of cartographic objects or places around the chart: they can be the landscape layout nearby a harbor, the shape of a bridge or of a buoy etc. On some objects, such as bridges, the image associated can represent the *Diagram* representing the shape of the objects and the various characteristics (length, height, type of bridge etc.).

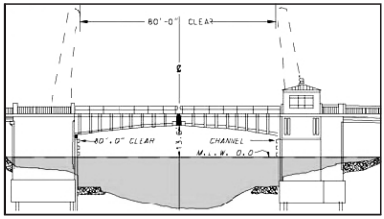


Figure 6.0.9 - Pictures and Diagrams

How to show the Pictures or Diagrams of a Object

They are shown on the Chart page with the camera icon , see the figure below:

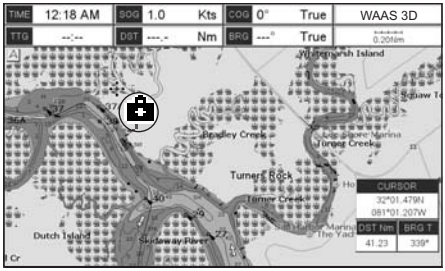


Figure 6.0.9a - Example of camera icon on CPF300i

Move the cursor over the camera icon. You are get the quick info on the object and there is the camera icon on the top bar of the window:

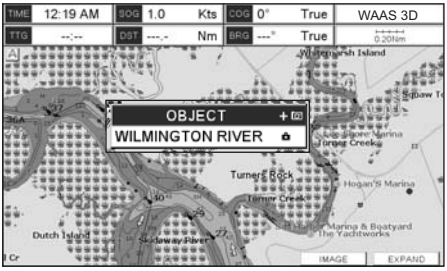


Figure 6.0.9b - Example of Quick Info on camera icon on CPF300i

On the CPF300i press **[IMAGE],** or on the CPF180i press **[ENT]** for 1 second, to display the image on the screen:

Figure 6.0.9c - Example of displayed image on CPF300i

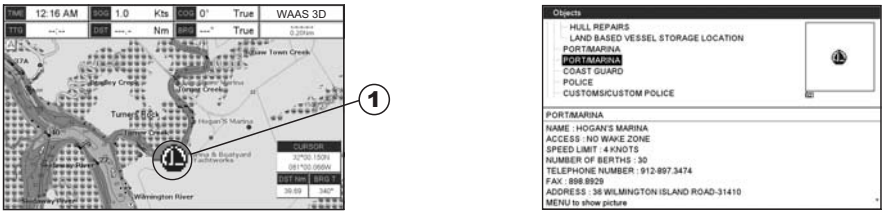
Otherwise on the CPF300i press **[EXPAND],** or on the CPF180i press **[ENT],** to open the Full Info on the object. Note that on the Full Info, there is the small camera icon on a corner of the square containing the object icon. To see the picture press **[MENU]** when the object with a picture is highlighted.

When the picture is shown, it is possible to fit it to screen by pressing **[ENT]**, to change the

contrast by pressing **[ZOOM IN]** or **[ZOOM OUT]** and to display the next picture associated, if any, by moving the ShuttlePoint knob left or right.

6.0.10 Enhanced Port Info

Optional C-MAP BY JEPPESEN MAX C-Cards include additional Port Services that were not present before.
Additional attributes of Port Areas and Port Marinas have been included as Location, Country, Region, State, Harbour master telephone number etc., see the following figure.



(1) PORT icon

Figure 6.0.10 - Example of enhanced Port Info on CPF300i

7. CREATING MARKS

Definitions:
MARK
Can be a stand alone position or be linked to a Route. A Mark is place on the Chart Page using **[MARK]** or by entering in information in the **MARK/WAYPONTS** menu and selecting **NEW MARK**.
WAYPOINTS
Always linked to a Route. Are placed on the Chart page using **[ROUTE]**.

NOTE

The difference between a Mark and a Waypoint is
a. When a Route is created using WAYPOINTS and the ROUTE is deleted the WAYPOINTs are also deleted.
b. If a Route is created using MARKS and the ROUTE is deleted the MARKs remain.

7.0 CREATING A NEW MARK USING THE CHART PAGE

1. Move the ShuttlePoint knob to the desired or approx. Lat/Lon and press **[MARK]**.
2. You will notice a Mark is placed under the location of the Cursor and a popup window is shown with the exact Lat/Lon of the Mark.
3. If the position is incorrect on the CPF180i press **[ENT]**, select **EDIT** using the ShuttlePoint knob and press **[ENT]**. On the CPF300i, press **[EDIT]** that will allow you to change the position, Mark name and icon type. Refer to Par. 7.1 for details.

(1) Mark placed under Cursor

(2) Lat/Lon of Mark, DST/BRG from vessel location

ONLY for CPF180i
(3) Press [ENT] to delete, to move, to edit a Mark or to show the Marks/Waypoint List (Directory)

ONLY for CPF300i
(4) Press Soft Key to show the Marks/Waypoint List, to edit, to move or to delete Mark

(5) Vessel location

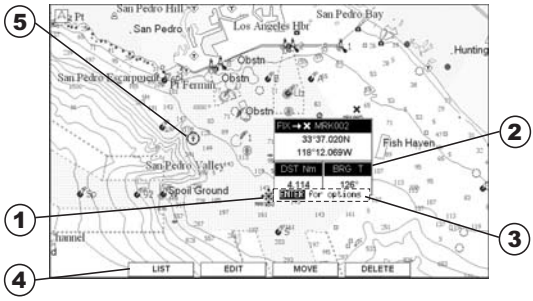


Figure 7.0 - Mark creation

NOTE

After entering in all the Marks it is a good practice to back up the points to an User C-CARD. Refer to Section 11.

7.1 EDITING A MARK

If a Mark has previously been created and you wish to Edit it, move Cursor over the top of the Mark.

1. After a Mark is created on the CPF180i press **[ENT]**, move the ShuttlePoint knob to highlight **EDIT** and press **[ENT]**. On the CPF300i press [**EDIT**] to show the edit popup window.

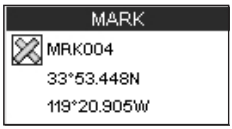


Figure 7.1 - Mark editing

2. The Mark Icon is selected, press **[ENT]**. A popup window appears:

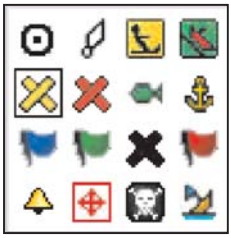


Figure 7.1a - Mark Icons

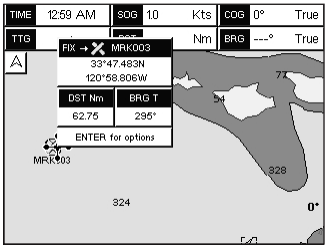
3. Move the ShuttlePoint knob to select the desired Mark Icon, when finished press **[ENT]**.
4. Move the ShuttlePoint knob to the right to select the Mark Name. Press **[ENT]** and the first digit in the name will be highlighted.
5. Move the ShuttlePoint knob up or down to select the first character.
6. Move the ShuttlePoint knob to the right to select the next character.
7. Repeat steps 4 and 5 until the Mark name is shown. Press **[ENT]**.
8. Move the ShuttlePoint knob to the right to select the Lat/Lon and press **[ENT]**.
9. Move the ShuttlePoint knob up or down to select the first character.
10. Move the ShuttlePoint knob to the right to select the next character.
11. Repeat steps 9 and 10 until the desired position is shown. Press **[ENT]** and **[CLR]** to store the Mark.

7.1.0 Deleting a Mark or Waypoint

1. Move the ShuttlePoint knob over the Mark or Waypoint to delete.
2. On the CPF180i press **[ENT]**, move the ShuttlePoint knob to highlight **DELETE** and press **[ENT]**. On the CPF300i press **[DELETE]**. A popup window will be shown to confirm deleting the point.
3. Move the ShuttlePoint knob to highlight **YES** and press **[ENT]**.

7.1.1 Moving a Mark or Waypoint

1. Move the ShuttlePoint knob over the Mark or Waypoint you want to move.
2. On the CPF180i press **[ENT]**, move the ShuttlePoint knob to highlight **MOVE** and press **[ENT]**. On the CPF300i, press **[MOVE]**.
3. Use the ShuttlePoint knob to move the cursor. A dotted line, connecting the previous Waypoint position to the new position, is shown:



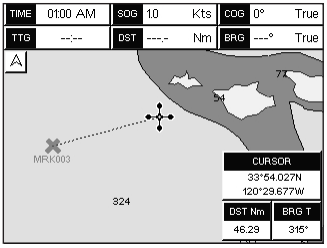


Figure 7.1.1 - Moving Mark or Waypoint (1)

4. Press **[ENT]** (**[CLR]** to abort the move), the Waypoint appears in the new position.

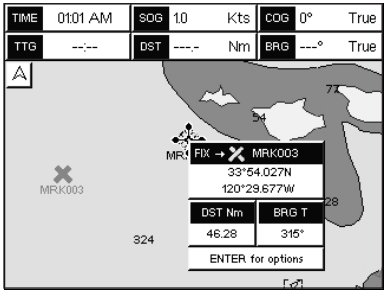


Figure 7.1.1a - Moving Mark or Waypoint (2)

7.2 MARKS/WAYPOINTS LIST

The **MARKS/WPTS** List shows all the Marks and Waypoints that have been stored into the GPS Chart Plotter. This page also allows you to:

ICON	Allows sorting by icon type. Selections are: a. SELECT - Only User Points with the selected icon are shown b. ALL - All User Points are shown
FIND	Searches through the Marks or Waypoints to find a point by name using the ShuttlePoint knob
LOCATE	Shows the position of a Mark or Waypoint on the Chart page
EDIT	Allows you to edit a previous stored Mark or Waypoint
SORT	Allows sorting the name of User Points. Selections are: a. A-Z ASCENDING - Sorts the name of the Mark or Waypoint in ascending order b. Z-A DESCENDING - Sorts the name of the Mark or Waypoint in descending order
NEW MARK	Allows you to create and edit a new Mark. Useful when entering many Marks from a list.
MODE	This selection controls how the Marks or Waypoints are shown on the Chart page. Selections are: a. SHOW - icon and name are shown b. ICON - only icon (no name) is shown c. HIDE - Mark or Waypoint is hidden d. SHOW ALL - All Marks or Waypoints are shown e. ICON ALL - All Icons are shown without name f. HIDE ALL - All Marks or Waypoints are hidden
DELETE*	Opens a window with two options: "DELETE SELECTED" for deleting the selected point and "DELETE ALL" for deleting all stored points.
SEND**	Sends the stored points to a external device (PC) capable of listening to NMEA WPL and RTE sentences.
RECEIVE**	When selected, receives points from an external device (PC) that is capable of sending NMEA WPL sentence.

NOTE*

The CPF300i has two items “DELETE” and “DEL ALL”.

NOTE**

The SEND and RECEIVE functions are used to receive or transmit User Points (Marks and Waypoints) to and from a Personal Computer (see also Par. 2.9).

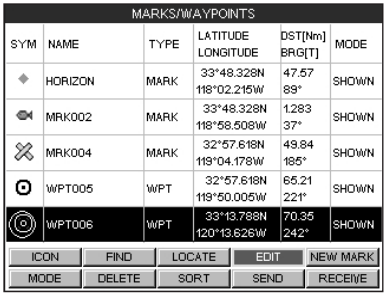


Figure 7.2 - Example of Marks/Waypoints List on CPF180

7.3 CREATING A NEW MARK WITH THE USER POINTS LIST

NOTE

This function is very useful if you have a list of Marks that you want to enter into the GPS Chart Plotter.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **MARKS/WPTS** and press **[ENT]**.
3. The MARKS/WAYPOINTS List page will be shown (see previous Figure).
4. To create a New Mark, move the ShuttlePoint knob to the right to highlight **NEW MARK** and press **[ENT]**. A row is added for the new Mark.
5. Move the ShuttlePoint knob to highlight **EDIT** and press **[ENT]**; then press **[ENT]** again to display a popup icons window and change the icon.
6. Move the ShuttlePoint knob to highlight the desired Icon and press **[ENT]**.
7. Move the ShuttlePoint knob to the right to select the Mark name. Press **[ENT]** and the first digit in the name will be highlighted.
8. Move the ShuttlePoint knob up or down to select the first character.
9. Move the ShuttlePoint knob to the right to select the next character.
10. Repeat steps 8 and 9 until the Mark name is shown. Press **[ENT]**.
11. Move the ShuttlePoint knob to the right to select the Lat/Lon and press **[ENT]**.
12. Move the ShuttlePoint knob up or down to select the first character.
13. Move the ShuttlePoint knob to the right to select the next character.
14. Repeat steps 12 and 13 until the desired position is shown. Press **[ENT]**.
15. Move the ShuttlePoint knob to the right to select the Mode field and press **[ENT]**.
16. Move the ShuttlePoint knob up or down to select the mode to show the Mark. You can choose among SHOW to show on the chart the name and icon of Mark, ICON to show on the chart only the icon of Mark or HIDE to hide on the Chart page the created Mark. Press **[ENT]**.
17. Press **[CLR]** to save the created Mark.
18. Press **[CLR]** again and the new Mark appears on the Chart page.

WARNING

After entering in all the Marks it is a good practice to backup the points to a User C-CARD. Refer to Section 11.

7.4 GOTO CURSOR, ROUTE AND MARK

The CPF180i and CPF300i can easily be set to start navigating to the Cursor on the chart page, a saved Mark or a Route that was created.

GOTO CURSOR

1. Move the ShuttlePoint knob to the exact position you want to navigate to.
2. Press **[GOTO]** and a GOTO popup window will be shown

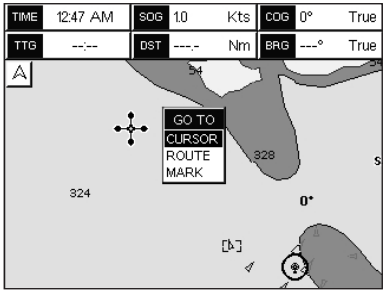


Figure 7.4 - GOTO menu (1)

3. Move the ShuttlePoint knob to highlight **CURSOR** and press **[ENT]**.

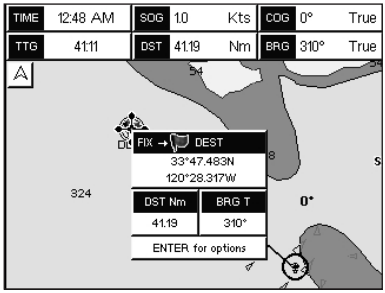


Figure 7.4a - GOTO menu (2)

4. The GPS Chart Plotter is now navigating from your current position to the location selected at step 1. A bearing line between the vessels location and the destination point is shown. A popup window shows the Distance (DST) and Bearing (BRG) from the vessels location to the destination point.

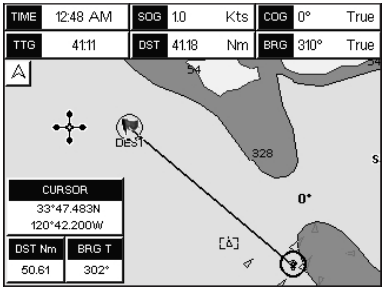


Figure 7.4b - GOTO menu (3)

5. The GPS Chart Plotter is in Cursor mode, to switch to Home mode press **[CLR]** so the vessel will stay in the center of the page.
6. On the CPF300i two Soft Keys are also shown that allow you to quickly switch to the HIGHWAY page or to stop navigation.
7. To STOP Navigation, press **[GOTO]** and a WARNING window is shown. Move the ShuttlePoint knob to highlight **STOP** and press **[ENT]**.

Figure 7.4c - Warning window

GOTO ROUTE

When a Route is shown on the Chart page, move the cursor over the designed Waypoint and press **[GOTO]**. For more information about Routes refer to Section 9.

GOTO MARK

1. Move the ShuttlePoint knob to an open position (no buoy, warning etc. under the cursor) on the Chart page.
2. Press **[GOTO]** to show the GOTO popup window.
3. Move the ShuttlePoint knob to highlight **MARK** and press **[ENT]** to show the MARKS/ WAYPOINTS List.
4. Move the ShuttlePoint Knob to the highlight the desired Mark or Waypoint and press **[GOTO]**.
5. You will notice a circle is drawn around the Icon Symbol. This means the GPS Chart Plotter is now navigating to the point.
6. Press **[CLR]** to switch to the Chart page or Highway page to start navigating to the point.

8. MAN OVER BOARD (MOB) FUNCTION

During navigation, the “MOB” feature provides a one-touch method of storing a location, such as a point were a crew member fell overboard. In this mode, the CPF180i or CPF300i places a MOB point on the Chart page and all the navigation data shown is related to navigating back to this point, allowing you to retrace your path to the MOB point efficiently.

8.0 PLACING A MOB POINT

1. On the Chart page, press **[MOB]** to start navigating back to the point.
2. You will notice a MOB Mark will be on the Chart page and all navigation is referring back to this point.
3. On the CPF300i: If the cursor is moved over the MOB Icon, the popup windows over Soft Keys will be shown allowing quick access to the Highway or Navigation page, or to Route Check.
4. To stop navigating to the MOB point, press **[GOTO]**, select **STOP** and press **[ENT]**.

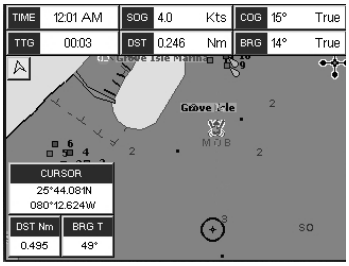


Figure 8.0 - MOB point

8.1 DELETING A MOB POINT

1. Move the ShuttlePoint knob until the cursor is over the top of the MOB icon.
2. On the CPF180i press **[ENT]**, move the ShuttlePoint knob to highlight **DELETE** and press **[ENT]**. On the CPF300i press **[DELETE]**, a popup window will be shown to confirm deleting the MOB point.
3. Move the ShuttlePoint knob to highlight **YES** and press **[ENT]**.

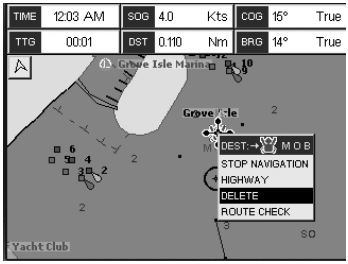


Figure 8.1 - Deleting MOB point

9. ROUTES

The CPF180i and the CPF300i have the capability to store 50 Routes with 100 Waypoints or Marks in each Route. A Route can consist of Waypoints or Marks. The difference is when a Route is made using Waypoints and the Route is deleted the Waypoints are also deleted. However if a Route is made of Marks and the Route is deleted the Marks stay in memory.

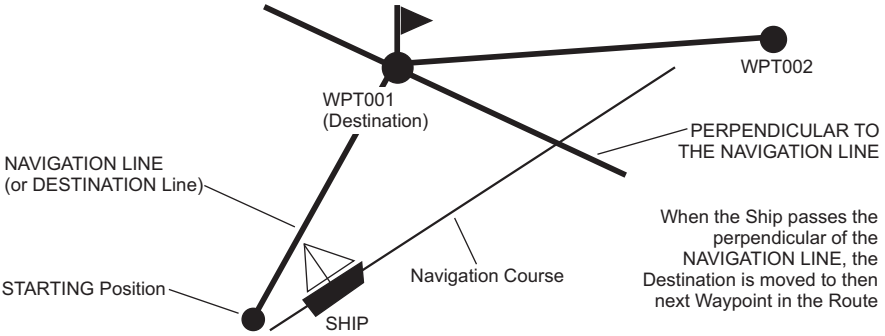


Figure 9 - Example to show how the plotter switches from one Waypoint to another

9.0 CREATING A ROUTE USING WAYPOINTS

1. On the Chart page move the ShuttlePoint knob to the Lat/Lon of the starting Waypoint in the Route.
2. Press **[ROUTE]**, you will notice the Starting Waypoint will be placed under the cursor.
3. Move the ShuttlePoint knob to the second Lat/Lon of the next leg in the Route.
4. Press **[ROUTE]**. You will notice another Waypoint is shown under the cursor and a line joins the starting Waypoint to the Second Waypoint.

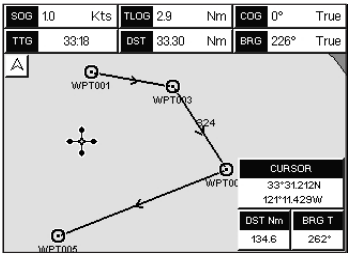


Figure 9.0 - Creating a Route using Waypoints

5. Repeat steps 3 and 4 until all Waypoints are entered into the Route.

NOTE

At this point the Route is saved as ROUTE01. If you would like to save the Route under a specific name follow the next steps.

9.1 CHANGING THE NAME OF A ROUTE

To name the Route:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ROUTE** and press **[ENT]**.
3. Move the ShuttlePoint knob to highlight **EDIT ROUTE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **NAME** and press **[ENT]**. A popup window will be shown.
5. Move the ShuttlePoint knob up/down to change the characters and left/right to select a different character in the Routes Name.

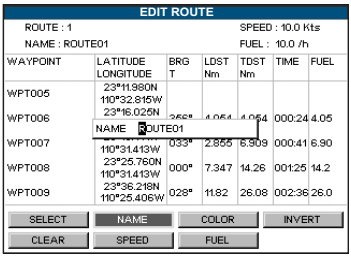


Figure 9.1 - Edit Route (Route Report)

6. When finished press **[ENT]** to save.
7. Press **[CLR]** to show the Chart page.

9.2 CREATING AN OLYMPIC ROUTE

This feature allows the starting point in a Route to be saved as the final destination point.

1. On the Chart page move the ShuttlePoint knob to the Lat/Lon of the starting Waypoint in the Route.
2. Press **[ROUTE]**, the starting Waypoint will be placed under the cursor.
3. Move the ShuttlePoint knob to the second Lat/Lon of the next leg in the Route.
4. Press **[ROUTE]**. Another Waypoint is shown under the cursor and a line joins the starting Waypoint to the second Waypoint.
5. Repeat steps 3 and 4 until all Waypoints are entered into the Route.

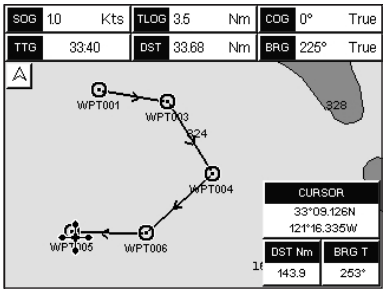
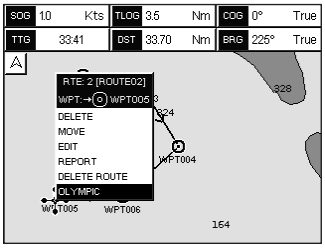


Figure 9.2 - Olympic Route creation (1)

6. Then move the ShuttlePoint knob to the last Waypoint. On the CPF180i press **[ENT]**.
7. On the CPF180i move the ShuttlePoint knob to highlight **OLYMPIC** and press **[ENT]**. On the CPF300i press **[OLYMPIC]**. A line joins the starting Waypoint and the last Waypoint.



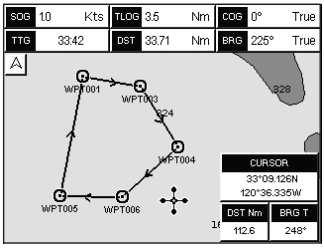


Figure 9.2a - Olympic Route creation (2)

9.3 MAKING ADDITIONAL ROUTES

To create another Route the GPS Chart Plotter must be told that you want to create a second Route.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ROUTE** and press **[ENT]**.
3. Move the ShuttlePoint knob to highlight **SELECT** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to an open Route number example Route 2.
5. Press **[ENT]** or move the ShuttlePoint knob to the right.
6. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page is shown.
7. To create the new Route, follow the steps in Creating a Route using Waypoints or Marks sections.

9.4 CREATING A ROUTE USING MARKS ON THE CHART PAGE

To create a Route containing Marks you first must create the Marks and show them on the Chart page.

1. Move the ShuttlePoint knob over the top of a Mark that you wish to be the starting point in the Route and press **[ROUTE]**.

2. Next move the ShuttlePoint knob until the cursor is over the Mark that you want to be the next leg in the Route.
3. Press **[ROUTE]**. You will notice a bearing line joins the first and second Mark which means these Marks are selected into the Route.
4. Repeat steps 3 and 4 until all Marks are entered into the Route.

NOTE

At this point the Route is saved as ROUTE01. If you would like to save the Route under a specific name follow the remaining steps.

5. To name the Route press **[MENU]**. Move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
6. Move the ShuttlePoint knob to highlight **ROUTE** and press **[ENT]**.
7. Move the ShuttlePoint to highlight **EDIT ROUTE** and press **[ENT]** or move the ShuttlePoint knob to the right.
8. Move the ShuttlePoint knob to highlight **NAME** and press **[ENT]** or move the Shuttle-Point knob to the right. A popup window will be shown.
9. Move the ShuttlePoint knob up/down to change the characters and left/right to select a different character in the Routes Name.
10. When finished press **[ENT]** to save.
11. Press [**CLR]** to show the Chart page is shown.

9.5 INSERTING A WAYPOINT INTO A ROUTE

On the CPF180i place the cursor on the navigation line between two Waypoints and press **[ROUTE]**. On the CPF300i placing the cursor on the navigation leg between two points, soft key labels appear: press **[INSERT]**. The line between the two Waypoints is turned into a dotted line, see the following picture.

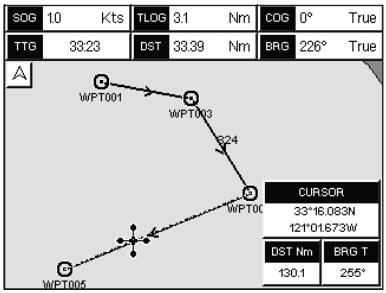


Figure 9.5 - Inserting Waypoint procedure (1)

Move the ShuttlePoint knob to the desired location for the new Waypoint: the line will “rubber-band”, drawing a dotted line between the previous Waypoint and the cursor, and another dotted line between the cursor and the next Waypoint (see the left side of the above picture). Once you have positioned the cursor at the location you want, press **[ENT]** (see the right side of the above picture).

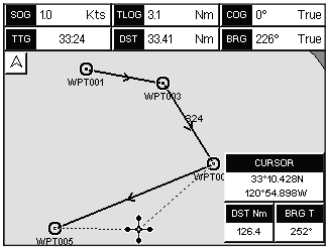


Figure 9.5a - Inserting Waypoint procedure (2)

9.6 GOTO A ROUTE

By having created some Routes, you can choose one of them to place a GOTO on.

9.6.0 Using [GOTO] to select Route

1. Move the ShuttlePoint knob to an open position (no buoy, warning etc. under the cursor) on the Chart page.
2. Press **[GOTO]** to show the GOTO popup window.
3. Move the ShuttlePoint knob to highlight **ROUTE** and press **[ENT]**.
4. The SELECT ROUTE popup window will be shown.

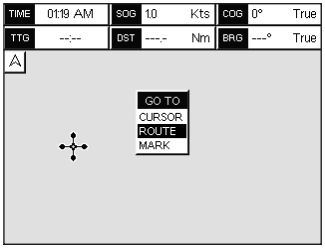


Figure 9.6.0 - GOTO ROUTE procedure (1)

5. Move the ShuttlePoint knob to the highlight the desired Route and press **[ENT]**.
6. On the Chart page a circle with a flag is shown on the first leg of the Route and a navigation line is shown, indicating the GPS Chart Plotter is navigating to the first Waypoint in the Route.

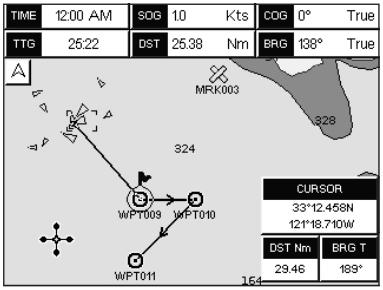


Figure 9.6.0a - GOTO ROUTE procedure (2)

9.6.1 Using the ShuttlePoint knob

1. On the Chart page move the ShuttlePoint knob until the cursor reaches the starting point of the Route.
2. Press **[GOTO]** to start following the Route.
3. Press **[CLR]** twice to revert to Home mode.

9.7 DELETING A ROUTE

To delete a Route follow the procedure below:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ROUTE** and press **[ENT]**.
3. Move the ShuttlePoint knob to highlight **DELETE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. A Warning message appears to confirm. Move the ShuttlePoint knob to highlight **YES** and press **[ENT]**. The Route has been deleted.

WARNING

An active Route (one that you are navigating to) cannot be deleted until you stop navigating to the Route.

9.8 OTHER SETTINGS IN ROUTE MENU

You will notice the **ROUTE** menu has other selections.

SELECT	Choose an available Route to create or choose a stored Route to show and follow on the Chart page.
REVERSE	Reverses the Route, when chosen Starting point is at the end of the Route.
COLOR	Allows changing the color of the navigation lines between each leg in the Route.
EDIT	The Edit Route (Route Report) menu is useful to show details of the Waypoints contained within the Route. This menu also allows you to enter in your average speed and fuel consumption and calculate the approximate fuel used when following the Route.
SEND	Sends the stored points to a external device (PC) capable of listening to NMEA RTE sentence.
RECEIVE	Receive the points from an external device (PC) capable of sending NMEA RTE sentence.
THICKNESS	Selection that allows the Route line to be easily seen; default selection is Thick.

9.8.0 Route Check

The Route Check function is used after you have created a Route to ensure you and your vessel will not have problems while navigating. This is done by the CPF180i and CPF300i by reviewing the Route and looking for the following hazards that may effect safe navigation.

- Land Areas
- Shallow Water
- Intertidal Areas *(areas emerged at low tide)*
- Rocks
- Wrecks
- Obstructions
- Shoreline Constructions
- Fishing Facility
- Dredged Areas
- Diffusers (*submarine pipeline*)
- Mooring/Warping Facility

- Production Installation (*an installation for the exploitation of natural resources*)
- Pingos (*small conical hills having a large central core of ice formed from the encroachment of permafrost and the resulting hydrostatic pressure*)
- No Data Available (*no adequate data coverage*)

If any of these alarm conditions is detected, the function returns the list of dangerous objects and the relative dangerous Route leg, that is drawn with a different color.

- Route legs which were classified as dangerous are displayed in RED. It means that there is at least one dangerous object in the vicinity of this leg and it has been found.
- Route legs which were classified as safe are displayed in GREEN. It means that the data was checked on detailed chart levels and no problems were found for all segments of the leg.
- Route legs for which there was not sufficient data to be checked are displayed in YELLOW. It means that no problems were found but the data was not sufficient or not available at all to classify such a leg as safe.

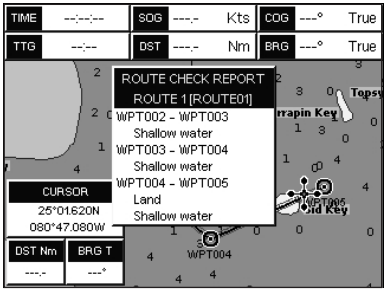
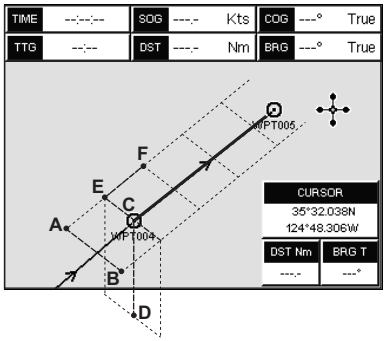


Figure 9.8.0 - Example of dangerous objects found on the chart

To activate this function:

AUTOMATIC CHECK	Turns the Route Check feature On or Off. Turn the Automatic Route Check on after you have created a new Route, or if you inserted a new Waypoint, deleted, moved or edited any Waypoint in a saved Route to confirm the Route can be safely navigated.
ROUTE WIDTH	This selection allows you to select the width from the left and right of the Route leg where the GPS Chart Plotter will check to confirm navigation threats. See the picture below. The default for this selection is 0.04NM.
DEPTH LIMIT	This selection allows you to select the water depth in the Route width area so the GPS Chart Plotter can check and confirm underwater threats. It checks if some objects with the depth attribute (like Shallow Water, Dredged Areas, Diffusers, Obstructions, Pingos, Production Installation and Wrecks) are above this depth level. Only if the depth attribute is above the depth limit are they found and considered as dangerous. See the picture below. The default setting is 10FT.
ACCURACY	Defines a segment length into which a leg of the Route is divided in order to execute the search for dangerous objects with better accuracy. When accuracy is maximal, a segment length is the shortest. When accuracy is minimal, a segment length is the longest. Selects among Minimum, Low, Medium, High and Maximum. See the picture below. The default setting is Medium.
ROUTE CHECK REPORT	Shows the list of the dangerous objects found on the charts crossed by the Route.



A-B = Width
C-D = Depth
E-F = Accuracy

Figure 9.8.0a - Route Check parameters

NOTE

Although the functionality is called Route Check, it can also be activated when the navigation is set to a single point (like DSC, MOB, Mark). In the case of checking a single point towards which the navigation is started, the leg for which the Route Check is executed is defined by the current position (the leg's starting point) and the destination point (the leg's ending point).

10. TRACKS

The CPF180i and the CPF300i have the capability to store 20 individual Tracks and record up to 10000 Track Points.
Before using the Track function you will need to setup the Track function that suits your boat. The Track function records your tracks your vessels location as it moves through the water. The Track function can be setup to lay down a Track for a predetermined time or distance interval. If you have a fast moving boat you may want to setup the CPF180i or CPF300i to record a Track point every 0.5NM or if you have a sail boat you may want to setup to lay down a Track point once every 1 minute.

NOTE

Please note the Track point memory capacity is 10,000 points. This means for a long journey you may have to adjust the time or distance to be able to track your journey. It should be noted when the 10,000 Track points are used up, the first Track point layed down will be deleted when a new point is placed on the chart.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **TRACK** and press **[ENT]**.
3. Move the ShuttlePoint knob to highlight **STEP UNIT** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **Dist** or **Time** and press **[ENT]** or move the ShuttlePoint knob to the right.

Figure 10 - Distance Units and Time Units

5. Move the ShuttlePoint knob to highlight **DISTANCE** or **TIME** step interval and press **[ENT]** or move the ShuttlePoint knob to the right.
6. Move the ShuttlePoint knob up/down to the desired step value and press **[ENT]** or move the ShuttlePoint knob to the right.
7. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page is shown.

10.0 TRACKING

When using the tracking feature you will notice every time a Track Point is layed down on the Chart page a small filled in circle is shown on the Track line. If you move the cursor over the top of the circle a popup window will be shown with the Time, Water Temperature, Speed and Course Over Ground (COG). This is very useful if you are fishing and want to review the conditions where the fish were being caught.

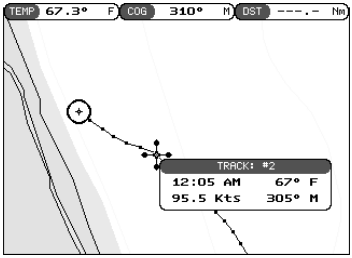


Figure 10.0 - Tracking

10.0.0 Saving and starting a new Track

A Track is automatically saved and retained in memory when the power is turned off. To start a new Track:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT].**
2. Move the ShuttlePoint knob to highlight **TRACK** and press **[ENT].**
3. Move the ShuttlePoint knob to highlight **ACTIVE TRACK** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob up/down to select the next available open Track and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob to highlight **TRACKING** and press **[ENT]** or move the ShuttlePoint knob to the right to set On.
6. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page is shown.
7. A new Track now will be laid down.

10.0.1 Deleting a Track

To delete a Track:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT].**
2. Move the ShuttlePoint knob to highlight **TRACK** and press **[ENT].**
3. Move the ShuttlePoint knob to highlight **DELETE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. A warning popup window will be shown to confirm if you want to reset the Track. Move the ShuttlePoint knob to highlight **YES** and press **[ENT]** or move the ShuttlePoint knob to the right. The Track is now deleted.
5. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page is shown.

10.0.2 Other settings

You will notice the Track menu has other selections:

TRACKING	Allows turning on or off the tracking function
ACTIVE TRACK	This selection allows you to save a Track to one of the 20 Tracks available
VISIBLE	Shows or hides a Track shown in ACTIVE TRACK menu
LINE COLOR	Selects the color of the Track line
DELETE	Deletes a Track selected in the ACTIVE TRACK menu
STEP UNIT	Allowable selection are Distance or Time

DISTANCE	User adjustable Distance interval of when Track point is laid down on the Chart page.
TIME	User adjustable Time interval of when Track point is laid down on the Chart page.

10.1 TRIP LOG

10.1.0 Using the Trip Log

On the Chart, Navigation, Highway, NMEA, Fish Finder and GPS Status Data pages the windows may be customized to show Trip Log information.

1. Select one of the pages listed above, press and hold **[MENU]**. You will notice one of the data boxes will be highlighted.
2. Press **[ENT]** and move the ShuttlePoint knob to highlight **TLOG**, press **[ENT]** or move the ShuttlePoint knob to the right.
3. A popup window will be shown with **Nm** (Nautical Mile), **Sm** (Statute Mile), **Km** (Kilometer) and **RESET**. Move the ShuttlePoint knob to select the desired units of measure and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Press **[CLR]** or move the ShuttlePoint knob to the right until the selected page (Chart, Navigation, Highway or NMEA Data Page) is shown.

10.1.1 Setup / Reset

When Trip Log is selected in one of the data windows and you want to reset the log:

1. Press and hold **[MENU]** until a field is highlighted (it will be shown in a yellow frame).
2. Move the ShuttlePoint knob to highlight the Trip Log window **TLOG** and press **[ENT]**.
3. A popup window will be shown. Move the ShuttlePoint knob to **TLOG** and press **[ENT]**.
4. Another popup window will be shown. Move the ShuttlePoint knob to **RESET** and press **[ENT]**.
5. A warning popup window will be shown to confirm if you want to reset the Trip Log. Move the ShuttlePoint knob to highlight **YES** and press **[ENT]**.The Trip Log is now reset.
6. Press **[CLR]** to store and exit the editing mode

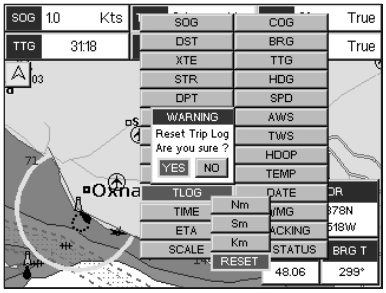


Figure 10.1. 1 - Trip Log Reset

11. USER C-CARD

The optional User C-CARD is used to back up Marks, Routes, and Tracks stored in your GPS Chart Plotter's memory. In the USA the User C-CARD is available directly from Jeppesen Marine at 800/424-2627. The User C-CARD is similar to a backup disk used with a PC, in case you have to clear the RAM to resolve an issue or load new software, or if you would like to transfer Waypoint, Track and Route information from one STANDARD HORIZON GPS Chart Plotter to another.

11.0 USER C-CARD MENU

This optional card is similar to using a floppy disk or memory stick on a PC to backup your files or to transfer the information that you have stored to a friends GPS Chart Plotter. The information shown below will assist you to transfer the User Points, Routes and Track history to the optional User C-CARD.

(1) Time of file creation

(2) Date of file creation

(3) Type of data contained in the file (Mark file, Waypoint file...)

(4) File name

(5) Number of Selected file

(6) Information on stored User Points on Internal Memory

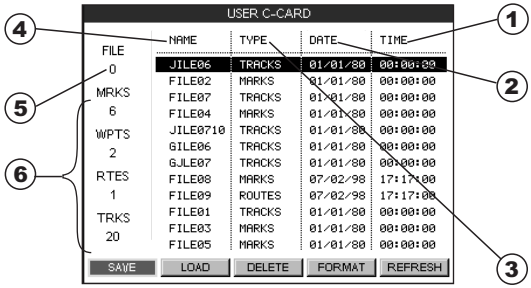


Figure 11.0 - User C-CARD Menu

11.0.0 Formatting the optional User C-CARD

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **USER C-CARD** and press **[ENT]**.
3. Move the ShuttlePoint knob to highlight **FORMAT** and press **[ENT]**.
4. A popup Warning window will to confirm you want to format the User C-CARD.
5. Select **YES** and press **[ENT]** to confirm (select **NO** otherwise). The format of User C-CARD must be done before using a new User C-CARD: this operation prepares the User C-CARD to receive and store information.

NOTE

Formatting permanently erases all files previously saved on the User C-CARD.

11.0.1 Transferring files to the optional User C-CARD

1. Remove a C-MAP By Jeppesen NT+/MAX C-CARD if present and insert the optional User C-CARD into the slot.
2. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.

3. Move the ShuttlePoint knob to highlight **USER C-CARD** and press **[ENT]**.
4. A screen will appear. Move the ShuttlePoint knob to the left to highlight **SAVE** and press **[ENT]**.
5. A popup **SAVE FILE** window will appear. In this window you can change the name and the file type by using the ShuttlePoint knob and pressing **[ENT]**, when finished press **[CLR]** once.
6. To save the file, move the ShuttlePoint knob to SAVE in window and press **[ENT]**.
7. A Information pop window will momentarily be shown "SAVING" then show SAVING OK.
8. Press **[ENT]** to confirm.

11.0.2 Loading a file from the optional User C-CARD

If you have a problem and accidentally loose the User Points in the GPS Chart Plotter with the optional User C-CARD it is possible to load the data back into the GPS Chart Plotter using the following procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **USER C-CARD** and press **[ENT]**.
3. Select the saved file from the User C-CARD list by using the ShuttlePoint knob and press **[ENT]**.
4. Move the ShuttlePoint knob to the left to highlight **LOAD** and press **[ENT]**.
5. A popup information window will appear when loading is complete.
6. Press **[ENT]** to confirm.

11.0.3 Deleting a file from the optional User C-CARD

You may want to delete a saved file on the User C-CARD.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **USER C-CARD** and press **[ENT]**.
3. Select the saved file from the User C-CARD list by using the ShuttlePoint knob and press **[ENT]**.
4. Move the ShuttlePoint knob to the left to highlight **DELETE** and press **[ENT]**.
5. A popup Warning window will to confirm you want to delete the file.
6. Press **[ENT]** to confirm.

11.0.4 Refreshing the optional User C-CARD

You may want to change the User C-CARD inserted in the slot with a new one.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **USER C-CARD** and press **[ENT]**.
3. Open the door, remove the User C-CARD from the slot and insert another User C-CARD into the same slot.
4. Move the ShuttlePoint knob to highlight **REFRESH** and press **[ENT]**. This "new" User C-CARD is now ready to receive and store information.

The CPF180i and CPF300i have many pages that are designed to ease your navigation.

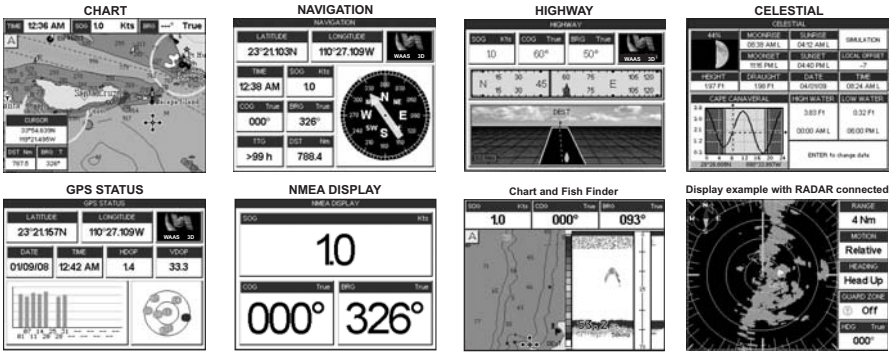


Figure 12 - Example of screen display pages

The pages can be selected in the following way:

Selection by MENU

This function is available on the CPF180i and CPF300i.

1. Press **[MENU]**. The following menu is shown on the screen:

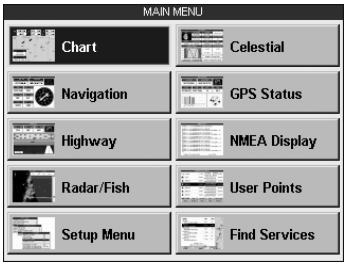


Figure 12a - Main Menu on CPF180i

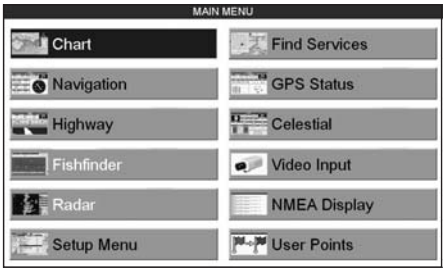


Figure 12b - Main Menu on CPF300i

2. Move the ShuttlePoint knob to highlight the desired page and press **[ENT]**.

Selection by SOFT KEY ONLY FOR CPF300i

Press one of the Soft Keys under the display, then press the Soft Key to show the desired page.

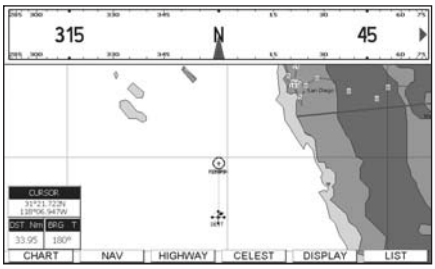


Figure 12c - Screen display pages (by Soft Keys) on CPF300i

12.0 CHART PAGE

The Chart page is the main page of the GPS Chart Plotter. From this page the user can zoom in/out, pan around the chart, show information about cartographic objects, see the exact vessel position with the COG and SOG, place points, GOTO a destination point, show Track history etc. The GPS Chart Plotter is provided with a Worldwide background showing C-MAP BY JEPPESEN NT+/MAX detail up to 2.0 NM. For more detail, optional C-MAP BY JEPPESEN NT+/MAX C-CARDs are available, refer to Par. 5.0.

It is possible to set the chart as a single or two charts side by side.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **CHART** and press **[ENT]**.Two Chart page types are available: Single and Dual.
2. Move the ShuttlePoint knob to highlight **Single** or **Dual** and press **[ENT]**.

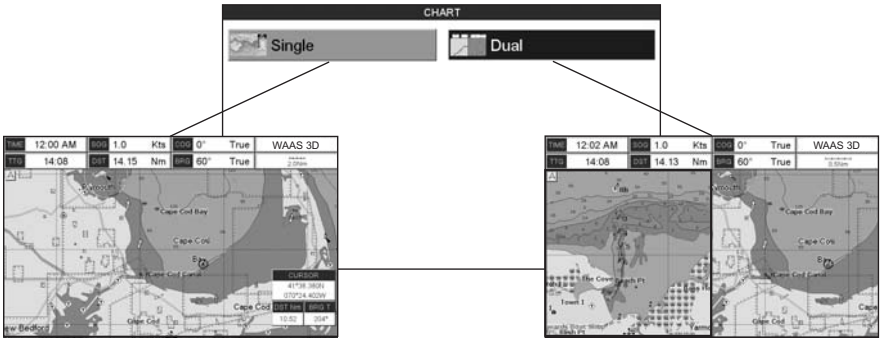


Figure 12.0 - Chart selection menu on CPF300i

NOTE

may appear on the unused window of the Dual Chart page. It happens when the GPS Chart Plotter updates the displayed chart in the not active window. So the user understands that the GPS Chart Plotter is busy.

For CPF300i
12.0.0 Focus Soft Key on Dual Chart Page

When Dual Chart is selected, you will notice one of the chart windows will have a red boarder around it. This red boarder indicates which chart window the chart plotter has the Focus on, meaning if the ShuttlePoint knob is moved the cursor on chart window will move. The focus may be changed to to the other chart window with the procedure below:

1. Press any Soft Key. The Soft Key labels appear on the bottom of the screen. A **[Focus]** Soft Key will be shown.

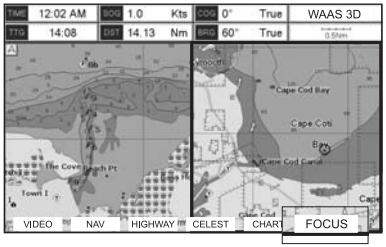


Figure 12.0.0 - Example of Dual Chart page with **[Focus]** shown

2. Press **[Focus].** A popup window appears where the active focus window label is highlighted.

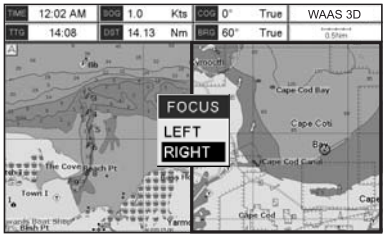


Figure 12.0.0a - Example of Dual Chart page with **[Focus]** window shown

3. Move the ShuttlePoint knob up and down to highlight the desired item and press **[ENT]**. The red boarder is moved to the focused window.

For CPF180i
12.0.1 Change Focus on Dual Chart Page

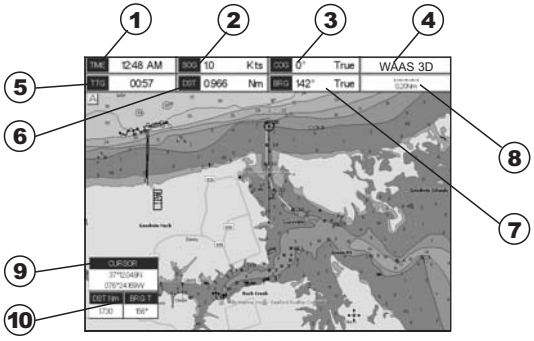
When Dual Chart is selected, you will notice one of the chart windows will have a red boarder around it. This red boarder indicates which chart window the chart plotter has the Focus on, meaning if the ShuttlePoint knob is moved the cursor on chart window will move. The focus may be changed to to the other chart window with the procedure below:

1. Press and hold **[FIND]** for 2 seconds. The "red" boarder around the window is moved from active window to the other.

Repeat the step 1. to move the focus from a window to another.

12.0.2 Single Chart Page

1. Time
2. Speed Over Ground
3. Course Over Ground
4. Fix status
5. Time To Go (If plotter is not navigating to a point TTG will show --:--)
6. Distance from Fix to Destination (If plotter is not navigating to a point DST will show ---.-)
7. Bearing from Fix to Destination (If plotter is not navigating to a point BRG will show ---°)
8. Chart Scale



9. Cursor Coordinates
10. Distance & Bearings from Fix to Cursor

Figure 12.0.2 - Example of Single Chart Page

12.0.3 Window Selections

The default is the Two Line Small window. The CPF180i and CPF300i windows may be changed by the procedure below.

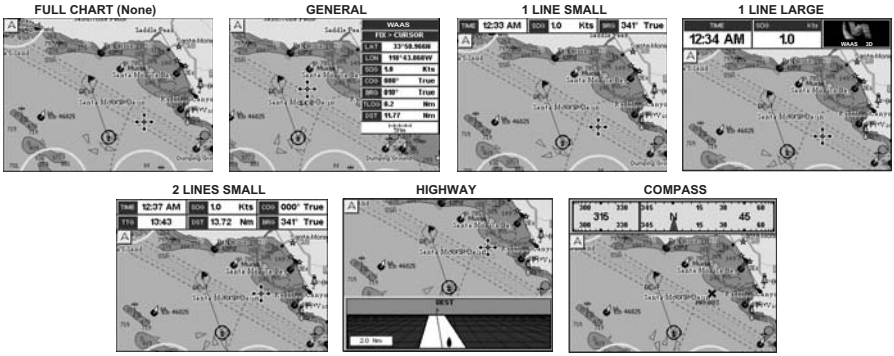


Figure 12.0.3 - Data window layout

1. To change, press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **WINDOWS SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **CHART PAGE** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Select the desired window, **HIGHWAY** or **COMPASS**, and press **[ENT]** or move the ShuttlePoint knob to the right.

6. Press **[CLR]** or move the ShuttlePoint knob to exit the menu and show the Chart page.

12.0.4 Customizing the Data Windows

The data fields contained on the General, 1 Line Small/Large and 2 Line Small data windows can be changed to the following selections:

- MAX SPD = Max Speed
- SOG = Speed Over Ground
- COG = Course Over Ground
- DST = Distance to Destination[1]
- BRG = Bearing to Destination[1]
- XTE = Cross Track Error
- TTG = Time To Go
- STR = Steering
- HDG = Heading from Electronic Compass
- DTP = Depth
- SPD = Speed
- ALT = Altitude
- AWS = Apparent Wind Speed
- AWD = Apparent Wind Direction
- TWS = True Wind Speed
- TWD = True Wind Direction
- HDOP = Horizontal Dilution of Precision
- VDOP = Vertical Dilution of Precision
- Temp = Water Temperature
- TLOG = Trip Log
- DATE = Current Date
- TIME = Current Time
- VMG = Velocity Made Good
- ETA = Estimated Time of Arrival
- TRACKING = Tracking
- SCALE = Chart Scale
- GPS Status = Shows GPS Fix Status (WAAS, 3D, 2D, ...)

NOTE[1]

When the GENERAL window is selected and the GPS chart plotter is in Home Mode, the BRG will show - - -, unless the GPS chart plotter is navigating to a point. When in Cursor Mode, the BRG shows the Bearing from the ship's position to the cursor location.

To select the desired field, follow the procedure:

1. Press and hold **[MENU]** until a field is highlighted (it will be shown in a yellow frame).
2. Move the ShuttlePoint knob to the desired data field (the yellow frame is moved to the desired data field) and press **[ENT]**. The popup window will be shown.
3. Move the ShuttlePoint knob up/down or left/right to choose the desired setting and press **[ENT]**.
4. Press **[CLR]** to store and exit the editing mode.

NOTE

Data window field on the NAVIGATION, HIGHWAY, GPS STATUS, and NMEA pages may be customized in the above manner.

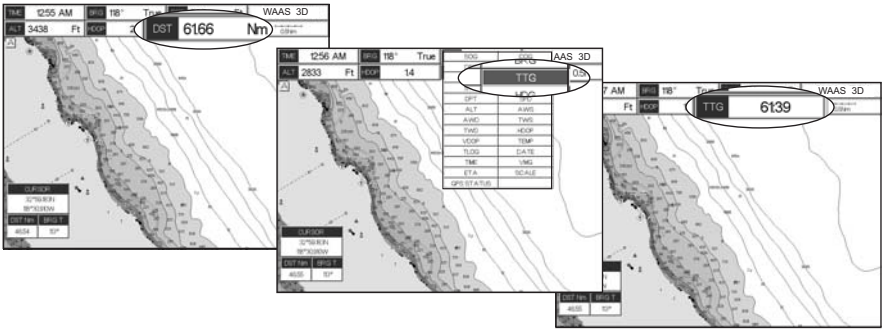


Figure 12.0.4 - Customizing the Data Windows

NOTE

See Par. 10.1.0 if Trip Log is selected in one of the data windows and you want to reset the log.

12.0.5 Additional Functions on Chart Page

When on the Chart page you will notice icons of Buoys, Towers, Lights, Wrecks, Tide Stations and Port Icons. If the cursor is moved over the top of these icons a popup window will be shown with information about the icon.

12.0.6 Turning Off Information on Icon Points

The GPS Chart Plotter allows you to select to see information On Points, On All items or to turn this function off. The default setting is On Points.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **AUTO INFO** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob up or down to highlight **OFF**, **ON POINTS** or **ON ALL** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page appears.

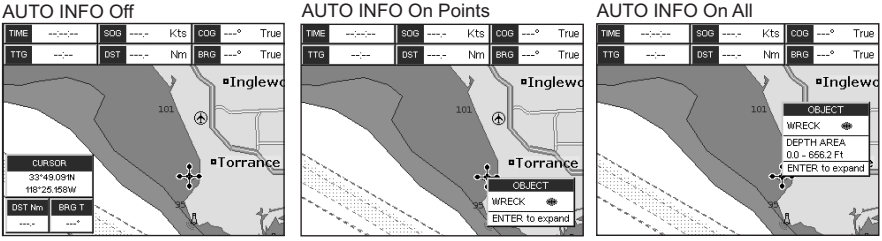


Figure 12.0.6 - Example of Auto Info settings

12.0.7 Display Mode

Selects from a pre-defined table what cartographic objects are displayed and which display options are set. Pre-programmed settings are user selectable from Full, Medium, Low, Radar (reduces the information on the display to simulate items that would be shown on a RADAR display. Please note this function is not actually showing RADAR information it is only showing what typically would be shown by a separate dedicated RADAR display), Tides, Custom (default mode).

To change to one of the pre-programmed settings

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **CHART CONFIGURATIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **DISPLAY MODE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob up or down to select the preset and press **[ENT]**.
5. Press **[CLR]** or move the ShuttlePoint knob to the right until the Chart page is shown.

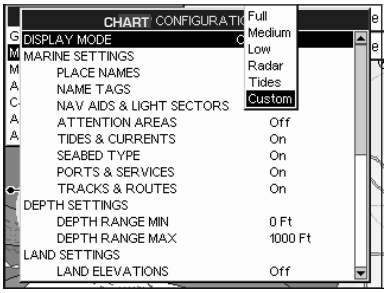


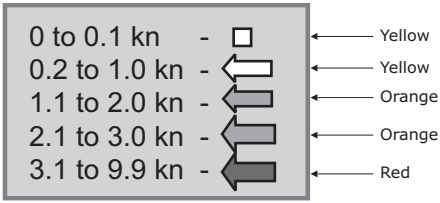
Figure 12.0.7 - Display Mode settings

The table below shows the selections for each mode:

Setting	Full	Medium	Low	Radar	Tides	Custom (Default values)
Place Names	On	On	On	On	On	On
Name Tags	On	Off	Off	Off	Off	Off
Nav Aids & Light Sectors	On	No Sectors	No Sectors	No Sectors	Off	On
Attention Areas	On	On	Off	Off	Off	Off
Tides & Currents	On	Off	Off	Off	On	On
Seabed Type	On	Off	Off	Off	Off	On
Ports & Services	On	On	Off	On	Off	On
Tracks & Routes	On	Off	Off	Off	Off	On
Depth Range Min	0FT	0FT	0FT	0FT	0FT	0 Ft
Depth Range Max	32804FT	32804FT	32804FT	32804FT	32804FT	32804FT
Land Elevations	On	On	Off	Off	Off	Off
Land Elevation Values	On	Off	Off	Off	Off	On
Roads	On	Off	Off	Off	Off	On
Points Of Interest	On	Off	Off	Off	Off	On
Lat/Lon Grid	On	Off	Off	Off	Off	Off
Chart Boundaries	On	Auto	Off	Off	Off	Off
Value-Added Data	On	Off	Off	Off	On	On
Chart Lock	On	On	On	On	On	On
Mixing Levels	On	On	On	On	On	On
Underwater Ob. Limit	1000FT	32FT	32FT	32FT	32FT	1000FT
Rocks	Icon + Depth	Icon	Icon	Icon	Icon	Icon
Obstructions	Icon + Depth	Icon	Icon	Icon	Icon	Icon
Diffusers	Icon + Depth	Icon	Icon	Icon	Icon	Icon
Wrecks	Icon + Depth	Icon	Icon	Icon	Icon	Icon

12.0.8 Marine Settings

To control the display on the chart of the marine features.

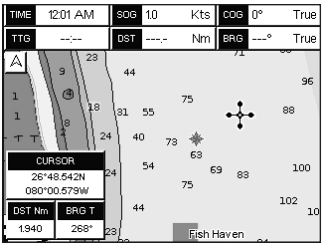
Place Names	:	Turns the Local area names On or Off.
Names Tags	:	Turns a tag for particular chart objects that either includes the Name of the chart object or the Depth of an Underwater chart object On or Off.
Nav Aids & Light Sectors	:	Turns the presentation of Lights, Signals, Buoys and Beacons On (Nav-Aids & Light Sectors are shown), Off (Nav-Aids & Light Sectors are not shown) or No Sector (Nav-Aids are shown, Light Sectors are hidden).
Attention Areas	:	Turns the Attention Areas (areas in which special attention by the mariner is required because of natural or man-made hazards sailing regulations and restrictions) On or Off.
Tides & Currents	:	Turns the Tides and Currents On or Off. When data/time is available, Tidal stream arrows are shown on the charts, indicating the direction and strength of the Tide. If no data/time is available from the GPS or the GPS Chart Plotter is not in Simulation mode, the icon on the chart is generic one. The color of the arrow denotes the strength of the current as follows:  When the GPS Chart Plotter receives a valid position fix, the Tide icons are shown on the charts on the basis of the current date and time: the screen displays and changes arrows as date/time changes.
Seabed Type	:	Turns the Seabed type On or Off.
Ports & Services	:	Turns the Ports and Service icons On of Off. Areas along the shore with facilities for mooring, downloading and uploading of ships, generally sheltered from waves and winds. Port installations are piers, wharves, pontoons, dry docks, cranes....
Tracks & Routes	:	Turns the underwater objects On or Off. Objects are obstructions, wrecks, cable etc.

12.0.9 Depth Settings

To control the display on the chart of the depth informations.

Depth Range Min	:	Sets the minimum depth limit to show Depth Sounding, Bathymetric Lines and Depth Area.
Depth Range Max	:	Sets the max depth limit to show Depth Sounding, Bathymetric Lines and Depth Area.

0-1000 Ft



50-100 Ft

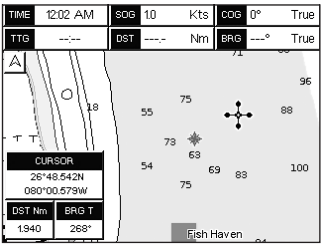
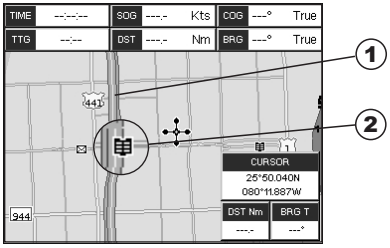


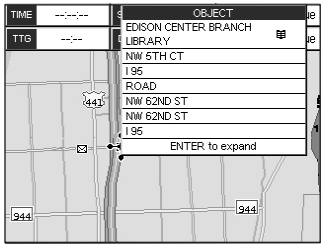
Figure 12.0.9 - Depth Settings

12.0.10 Land Settings

To control the display on the map of the terrestrial features.

Land Elevations	:	Turns the Land Elevations On or Off.
Land Elevation Values	:	Turns the Land Elevation Values On or Off.
Roads	:	Turns the Roads On or Off.
Points Of Interest	:	Turns the Points of Information On or Off.





(1) ROAD

(2) POINT OF INTEREST (LIBRARY)

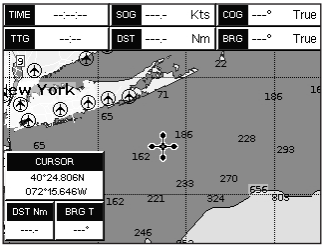
Figure 12.0.10 - Example of Roads and Points Of Interest

12.0.11 Chart Settings

Settings that control how the chart features will be shown on the Chart page of the GPS Chart Plotter.

Lat/Lon Grid : Turns the Latitude and Longitude grid lines on or off on the chart page. See the figure below:

Lat/Lon Grid ON



Lat/Lon Grid OFF

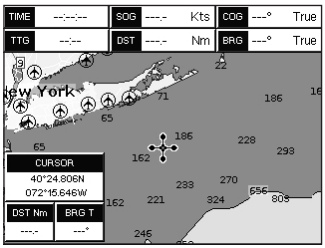


Chart Boundaries : Turns the Chart Boundaries On, Off or Auto. The Chart Boundaries are the "ticked" boxes sourround the coastline. Each box indicates an area where more detail is available. The Chart Boundaries are only show when a C-MAP By Jeppesen NT+ or MAX CARD is inserted into the GPS Chart Plotter. See the pictures below:

Chart Boundaries ON

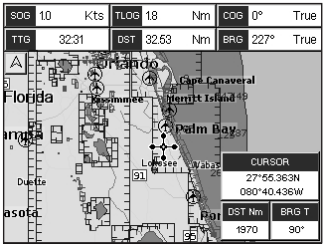
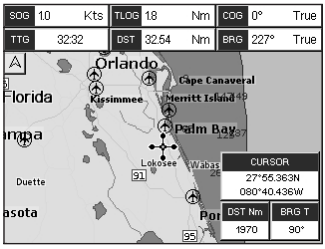
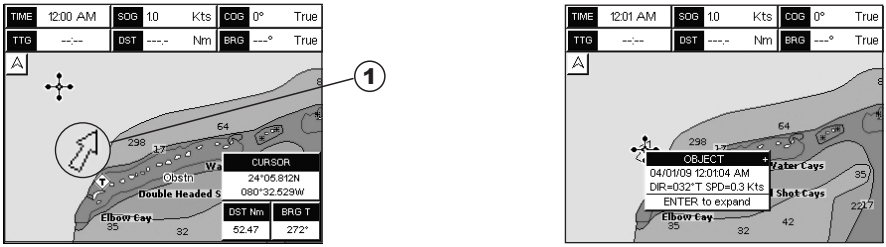


Chart Boundaries OFF



Value Added Data : Turns the Value Added Data On or Off. The Value Added Data (VAD) is a collection of additional cartographic objects which are not present on the original paper chart (from which the electronic chart derives). These objects have been obtained from other sources and then merged to the electronic charts in order to provide more information useful for the navigation. VAD object can be any cartographic objects and it can be distinguished from the official-chart-objects from the Quick Info. A dedicated icon is shown on the Quick Info window to indicate that the object queried is a VAD. The same icon is also shown on the Full Info page and in addition the extended text Value Added Data is shown on the details of the VAD object. See the figure below:



(1) Example of VAD object

Chart Lock (*) : Turns the chart function On/Off. When Chart Lock is On, the available zoom scales are only the ones containing cartographic data. Instead when Chart Lock is Off, it is possible to zoom down into zoom scales not covered by cartographic data after the last available zoom scale covered by cartographic data. The DSI (Data Safety Indicator) window, if present, will show “NO CHART”, when an empty level is entered in the location of chart expansion mode.

Mixing Levels : When the chart coverage at the current chart scale does not fill the entire display, the GPS Chart Plotter draws the rest of the chart using charts from above and below the current scale. When this function is turned on you will notice the display may redraw 2 to 3 times to show all the details.

NOTE(*)

When an empty level is entered, the message “No cartographic coverage” is shown on a window in a corner of the chart display. The warning message is always displayed as long as the current zoom has no data coverage.

12.0.12 Underwater Objects Settings

The following selections are used to control which Underwater Objects are shown on the Chart Page.

Underwater Object Limit : Selects the max depth value to display Underwater Objects. If value is set to 0 Feet, the Underwater Objects are not shown on the charts. Menu options are grayed out. If value is more than 0 Feet (i.e. 10 Feet), in the Range from 0 Feet to the selected value the Underwater Objects are displayed according to their setting below.

Rocks : Sets Off/Icon/Icon+Depth* the displaying of the Rocks.

Obstructions : Sets Off/Icon/Icon+Depth* the displaying of the Obstructions.

Diffusers : Sets Off/Icon/Icon+Depth* the displaying of Diffusers (Diffuser is a structure on an outfall through which liquids are discharged. The structure will usually project above the level of the outfall and can be an obstruction to navigation).

Wrecks : Sets Off/Icon/Icon+Depth* the displaying of Wrecks.

NOTE(*)

Choose the options: OFF (the object is not visible independently of the selected “Underwater Object Depth Value”); ICON (the object icon is visible without tags, in the range selected from “Underwater Object Depth Value” option); ICON+DEPTH (the object icon and tag is visible, in the range selected from “Underwater Object Depth Value” option).

12.1 CUSTOMIZING CHART SETTINGS

The GPS Chart Plotter also allows you to customize items shown on the chart (discussed in above sections) instead of using a pre-defined table discussed in Par. 12.0.4 Display Mode.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **CHART CONFIGURATIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **DISPLAY MODE** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **Custom** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob up or down to select the desired item within the groups Marine Settings, Depth Settings, Land Settings, Chart Settings or Underwater Settings and press **[ENT]**. See the above sections for details on selections.

12.2 NAVIGATION PAGE

This page is useful to show information when heading to a destination, following a compassa heading or navigating to a Mark or a Route. The default page is shown with a Compass Rose, however this can be customized to show a Compass Tape.

1. To change to show the Compass Tape, select the Chart page, press **[MENU]**. Move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **GENERAL SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **WINDOW SETUP** and press **[ENT]** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **NAVIGATION PAGE** and press **[ENT]** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint up or down to select **COMPASS TAPE** and press **[ENT]**.
6. Press **[CLR]** or move the ShuttlePoint knob to the right until the Chart page is shown.

NOTE

The COG heading is computed and supplied to the plotter from the internal GPS or external GPS.

(1) Fix position
(2) Time
(3) Speed Over Ground
(4) Course Over Ground
(5) Bearing to Destination
(6) Time To Go
(7) Distance to Destination
(8) Compass Rose

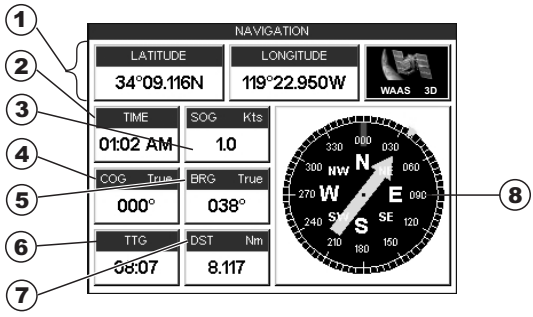


Figure 12.2 - Navigation page with Compass Rose

1. Fix position
2. Compass Tape
3. Time
4. Time To Go
5. Speed Over Ground
6. Distance to Destination
7. Course Over Ground
8. Bearing to Destination

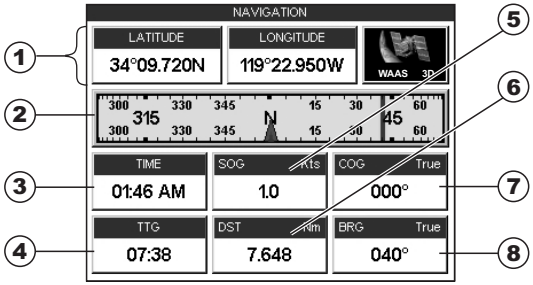


Figure 12.2a - Navigation page with Compass Tape

12.3 HIGHWAY PAGE

Shows a 3D view of the vessel travelling through the water when Navigating to a destination point, Mark or following a Route. Press **[ZOOM IN]** or **[ZOOM OUT]** to change the highway scale.

1. Speed Over Ground
2. Course over ground
3. Bearing
4. Highway Display
5. Highway Scale

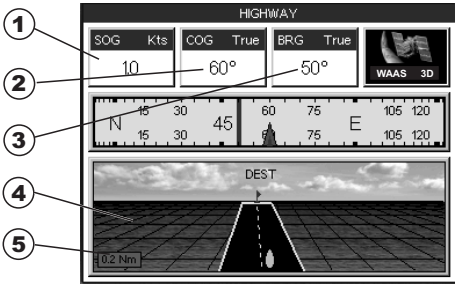


Figure 12.3 - Highway page

12.4 CELESTIAL PAGE

The Celestial page contains Tide information critical for safe navigation. This page is also useful for boaters that are concerned about the height of the water under a bridge or by fisherman that wish to know the tide and moon phase of a specific date.

Changing date

1. Press [**ENT]** and a popup window will be shown.
2. Moving the ShuttlePoint knob up or down changes the digits and left and right selects the month, day and year.
3. Press [**CLR]** to exit and view the information.

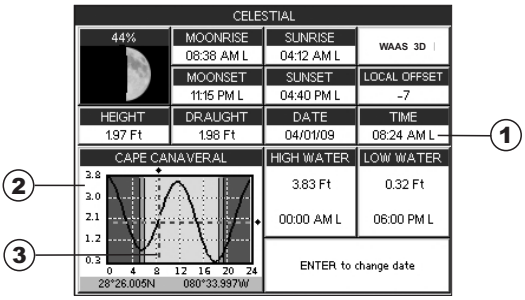


Figure 12.4 - Celestial page

Refer to the image above. The time (1) displayed corresponds to the location of the cross-hair cursor (3) in the Tide Graph (2). Moving the ShuttlePoint knob to the left or right changes the time, moving the ShuttlePoint knob up or down selects the Tide height and draught (draft) on the Tide Graph.

NOTE

The **draught** window shows the height of the tide water during a 24hr period of time. For example if the ShuttlePoint knob is pressed up to move the cursor to the top of the Tide Graph this is the High Water Level and if the cursor is moved to the bottom of the Tide Graph the draught will show the Low Water Level.

Example 1
You anchor in 15Feet of water (under your keel) at a time of day where the water is the highest (High Water). Let's say the High Water window shows 5Feet and the Low Water window shows 1Feet this means the water under your vessel over a 24 hour period of time could fall 4Feet (High Water - Low Water). With your vessel in 15Feet of water and with a maximum water change of 4Feet during the day, the worst case situation there will be 11Feet of water under your vessel.

12.5 GPS STATUS PAGE

This page is used as a reference to see how well the GPS is receiving satellites.

1. Ship's Coordinates
2. Date and Time
3. WAAS/GPS Icon
4. Vertical Dilution of Precision
   Horizontal Dilution of Precision
5. Tracked, but not used, Satellite
6. Used Satellite
7. COG (Course Over Ground)

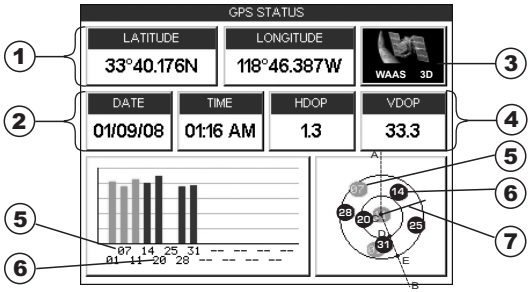


Figure 12.5 - GPS Status page

The WAAS/GPS Icon area may change due to the satellite reception:

ACQUIRING	: the GPS is trying to receive a valid position fix.
GPS2D	: The GPS is receiving at least 2 valid Satellites
GPS3D	: the GPS is receiving at least 3 Satellites.
WAAS 2D/3D	: the GPS is receiving a 2D or 3D position and the correction from the WAAS Satellite.
HDOP	: Horizontal Dilution of Precision
VDOP	: Vertical Dilution of Precision

12.5.0 WAAS/EGNOS Setting

From this page it is possible to disable the WAAS/EGNOS function following this procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to enter **GPS STATUS** page and press **[ENT]**.
2. Press and hold **[ENT]**. The GPS SETUP menu appears on the screen.
3. Move the ShuttlePoint knob to highlight **DIFF CORRECTION SOURCE** and press **[ENT]**.
4. Move the ShuttlePoint knob to highlight **None** (to disable) and press **[ENT]**.
5. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left until the menu disappears.

12.5.1 Setup Menu

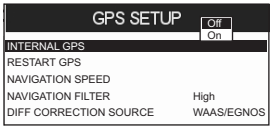


Figure 12.5.1 - Setup menu

From this page it is possible to activate the GPS Setup menu following this procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to enter **GPS STATUS** page and press **[ENT]**.
2. Press and hold **[ENT]**. The GPS SETUP menu appears on the screen. See the following table:

Internal GPS	:	Enables (On) or disables (Off) the Internal GPS. The default setting is On.
Restart GPS	:	Restarts all GPS processes. Once executed, the message "Done" is shown.
Navigation Speed	:	Allows setting the Navigation Speed among Low and High. The default setting is High.
Speed Filter	:	Allows to resolve erratic speed readings in rough seas. Available values are Off, Low, Medium, High. The default setting is Off.
Differential Correction Source	:	Allows setting what kind of Differential Correction will be used by the GPS between WAAS-EGNOS and none. The default setting is WAAS-EGNOS.

3. Move the ShuttlePoint knob to highlight the preferred item and press **[ENT]**.
4. Press **[CLR]** until the menu disappears or an easier method is to move the ShuttlePoint knob to the left until the menu disappears.

12.6 NMEA DISPLAY PAGE

The GPS Chart Plotter is capable of displaying information in the customizable data windows from external NMEA 0183 devices. Depth sounder, Speed Log with temp, Wind speed and direction, Flux gate compass, and GPS information can be shown in any of the boxes. The default NMEA Display shows 3 windows. When going to a destination, this screen is useful to navigate as to get to the destination keep the Course Over Ground (COG) and Bearing (BRG) figures the same.

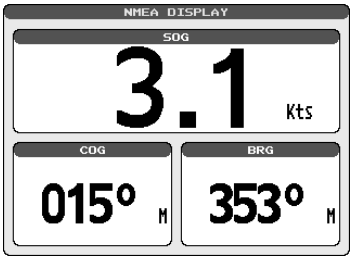


Figure 12.6 - NMEA Display page

The NMEA sentences read from external devices are: BWC, DSC, DSE, GGA, GLL, GSA, GSV, HDG, HDM, HDT, RMC, VHW, VTG, DPT, DBT, MTW, VWR, VWT, TLL, WPL, RTE.

CHANGING the NMEA PAGE Windows

1. On the CPF180i, press **[MENU]**. Move the ShuttlePoint knob to highlight **NMEA DISPLAY** and press **[ENT]**.

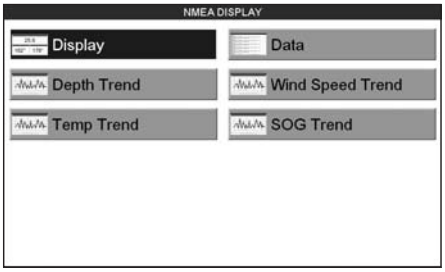


Figure 12.6a - NMEA Display menu on CPF300i

2. The CPF300i can use step 1, and from the factory the right most Soft Key is programmed for direct access. Press this key two times to show the NMEA Display page.
   Move the ShuttlePoint knob to highlight **DISPLAY** and press **[ENT]**.
3. To change the 5 different pages move the ShuttlePoint knob to the left or right.

12.7 NMEA DATA PAGE

The NMEA Data page is very useful to see if a External device (example: Depth Sounder) is transmitting NMEA sentences to the GPS Chart Plotter. This page can also be used to see if the GPS Chart Plotter NMEA output is being loaded down by a external NMEA device

the GPS Chart Plotter is connected to.
Scenario: VHF Radio connected but the Radio is not receiving a GPS Position.
Usually the VHF Radio will be connected to the Green and Brown wires. To check to see if the GPS Chart Plotter is transmitting the sentences:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **NMEA DISPLAY** and press **[ENT]**.

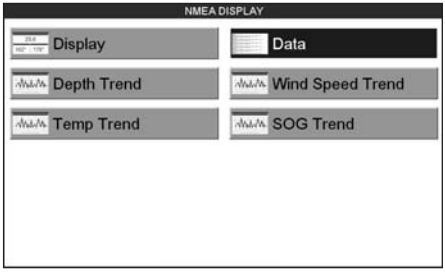


Figure 12.7 - NMEA Display menu on CPF300i

2. Move the ShuttlePoint knob to highlight **DATA** and press **[ENT]**.
3. Connect the BLUE Wire on the GPS Chart Plotter to the junction of the Brown wire and the VHF wire. The display should look similar to the following picture.

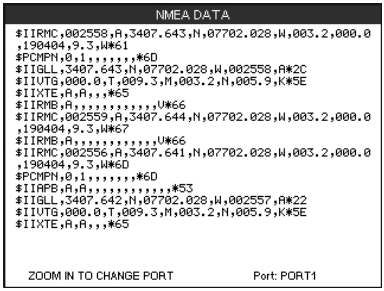


Figure 12.7a - NMEA Data page

4. Press **[ENT]** to freese the data on the display so it is easy to read and understand.
5. Press **[ENT]** again to receive data again.
6. View data from a device connected to another data port, press the **[ZOOM IN]**.

12.8 NMEA TREND PAGES

The CPF180i and CPF300i have the following NMEA Trend pages.
Trends will be shown for Depth, Temp and Speed (DST521 or DST526 must be connected to show speed through the water) when a Standard Horizon transducer is connected. To show Wind trend information the CPF180i or CPF300i must be connected to the NMEA output of a external Wind instrument.

To select a NMEA Trend Page:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **NMEA DISPLAY** and press **[ENT]**.

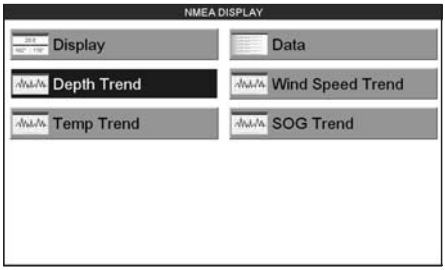


Figure 12.8 - NMEA Display menu on CPF300i

2. Move the ShuttlePoint knob to select **DEPTH TREND**, **WIND SPEED TREND**, **TEMP TREND** or **SOG TREND** and press **[ENT].**

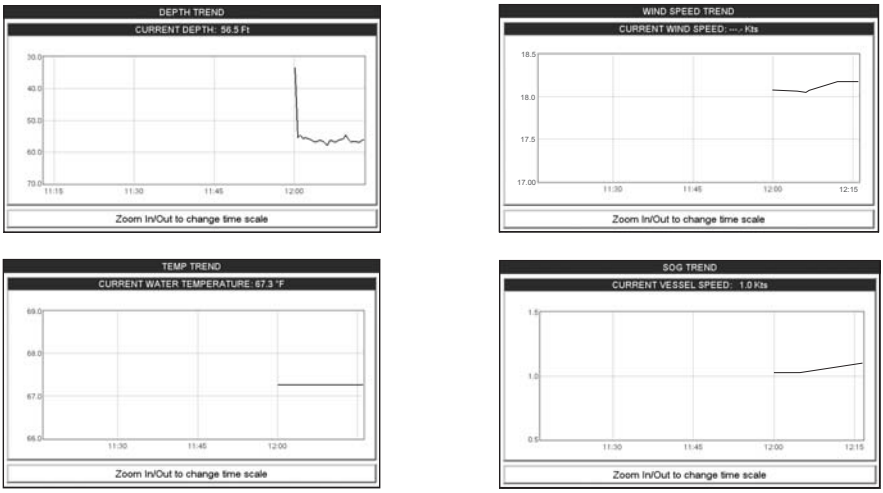

DEPTH TREND
CURRENT DEPTH: 56.5 Ft
Zoom In/Out to change time scale
WIND SPEED TREND
CURRENT WIND SPEED: ---.- Kts
Zoom In/Out to change time scale
TEMP TREND
CURRENT WATER TEMPERATURE: 67.3 °F
Zoom In/Out to change time scale
SOG TREND
CURRENT VESSEL SPEED: 1.0 Kts
Zoom In/Out to change time scale

Figure 12.8a - NMEA Trend pages on CPF180i/CPF300i

12.9 VHF DIGITAL SELECTIVE CALLING

Digital Selective Calling is a semi-automated method of establishing a VHF radio call. DSC had also been designated as part of the Global Maritime Distress and Safety System (GMDSS).
This new system allow mariners to instantly send a distress call with GPS position (when connected to the transceiver) to the US Coast Guard and other vessels within range of the transmission. DSC will also allow mariners to initiate POSITION Request, POSITION Report calls to or from another vessel equipped with a DSC transceiver.

Compatible VHF Marine Radios with Digital Selective Calling are able to be interfaced with the GPS Chart Plotter which feeds GPS data to the VHF and listens for DSC calls from the VHF. By connecting a few wires between the compatible DSC VHF radios and the GPS Chart Plotter it will receive:
1. a vessel that has transmitted a DSC Distress call

2. a vessel that has transmitted a DSC Position Send Call
3. The position of a vessel that transmitted a DSC Position Request Call

12.9.0 Interfacing

To take advantage of these functions the GPS chart plotter must be interfaced (wired) to a STANDARD HORIZON or compatible DSC VHF.
For additional information refer to Par. 2.4 Connections.

Interfacing to VHF Radio For CPF180i

VHF Wires	CPF180i	Description
Blue	Brown	Brown wire (GPS chartplotter) outputs data to VHF
Gray	Blue	Gray wire (VHF) outputs DSC data to GPS chartplotter
Green	Green	Green is data common ground

Figure12.9.0 - Interfacing to VHF Radio for CPF180i

Interfacing to VHF Radio For CPF300i

VHF Wires	CPF300i	Description
Blue	Brown	Brown wire (GPS chartplotter) outputs data to VHF
Gray	Blue	Gray wire (VHF) outputs DSC data to GPS chartplotter
Green	Black	Green is data common ground

Figure12.9.0a - Interfacing to VHF Radio for CPF300i

12.9.1 Distress Call

STANDARD HORIZON GPS chart plotters are able to display the location of a vessel in distress when interfaced to a compatible DSC VHF with NMEA 0183 output and the radio receives a DSC Distress Call. STANDARD HORIZON GPS chart plotter also log DSC Distress calls to review at a later date.

1. Press **[MENU]** and move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **DSC Log** and press **[ENT].**

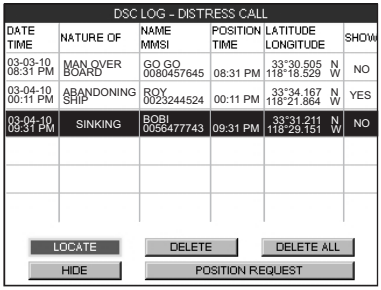


Figure 12.9.1 - DSC Log - Distress Call

12.9.2 Position Request

STANDARD HORIZON GPS chart plotters are able to display the location of a vessel when connected DSC VHF radio and when a Position Request or Report call is received. STANDARD HORIZON GPS also log DSC Distress calls to review at a later date.

1. Press **[MENU]** and move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **DSC Log** and press **[ENT].**
3. Move the ShuttlePoint knob to the right to select **POSITION REQUEST** and press **[ENT]**.

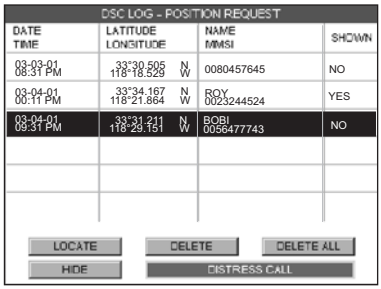


Figure 12.9.2 - DSC Log - Position Request

13. ADVANCED SETTINGS

The Advanced Setup menu allows customization of many GPS functions, Alarms and NMEA interfacing.

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT] or** move the ShuttlePoint knob to the right.

While in this menu you will see many selections which are described in the next sections.

13.0 INPUT/OUTPUT (NMEA, AIS, RADAR)

13.0.0 Input

The CPF180i has 1 NMEA Input and 2 NMEA Outputs and the CPF300i has 3 Inputs and 3 Output connections.

These ports may be set up to receive and output the following.

- NMEA-0183 - NMEA devices* set to 4800 Baud (default setting)
- C-Com - C-Weather refer to Section 15
- Radar - SI-TEX optional Radar refer to Radar Owner's Manual
- AIS38400 - AIS Receiver, refer to Section 14
- MOBILARM - Mobil-arm receiver, refer to Section 16
- Disabled - allow the port to be disabled.

NOTE

When a Port is configured, both the Input and Output have the same setting.
Port1 is set to Radar, both the Input and Output wires are set to SI-TEX proprietary Radar sentences. This means other devices should not be connected to the Input or Output wires.

NOTE*

RS232 not opto-isolated electrical interface

13.0.1 Ouput

The ports may be setup to output NMEA sentences. The table below shows the default setting each port.

CPF180i

Sentence	Port1	Port2
GLL	On	On
VTG	Off	Off
BWC	Off	Off
WCV	Off	Off
APA	Off	On
APB	Off	On
HDG	Off	Off

BOD	Off	On
XTE	On	On
RMA	Off	Off
RMB	Off	Off
RMC	On	On
GGA	On	On
HSC	Off	Off
DBT	On	Off
DPT	On	Off
MTW	On	Off
VHW	On	Off
GSA	On	Off
GSV	On	Off

CPF300i

Sentence	Port1	Port2	Port3
GLL	On	On	On
VTG	Off	Off	Off
BWC	Off	Off	Off
WCV	Off	Off	Off
APA	Off	Off	Off
APB	Off	Off	Off
HDG	Off	Off	Off
BOD	Off	Off	Off
XTE	On	On	On
RMA	Off	Off	Off
RMB	Off	Off	Off
RMC	On	On	On
GGA	On	On	On
HSC	Off	Off	Off
DBT	On	Off	Off
DPT	On	Off	Off
MTW	On	Off	Off
VHW	On	Off	Off
GSA	On	Off	Off
GSV	On	Off	Off

13.1 NAVIGATE

The Navigate Menu allows customization of the Coordinate System (Loran TD's), Chart Datum, Chart Orientation Resolution (angle the vessel has to change before the chart is redrawn) and Static Navigation. See the following table

Coordinate System	:	Selections are: a. TD: Time Difference, based on Loran (see the following Par. 13.1.0) b. UTM: Universal Transverse Mercator Grid c. ddd mm.mmm: Degrees Minutes and Thousands of Minutes d. ddd mm.mm: Degrees Minutes and Hundredths of Minutes e. ddd mm.ss: Degrees Minutes and Seconds (default)
Chart Datum	:	Allows selection of Chart Datums. The default Datum is WGS84 as C-MAP By Jeppesen cartography has been compiled using the WGS84 Datum. A datum is a mathematical model of the Earth which approximates the shape of the Earth, and enables calculations such as position and area to be carried out in a consistent and accurate manner.
Chart Orientation Resolution	:	Sets the angle the vessel has to change before the chart is redrawn. The default setting is 30 degrees. Example: if the vessel is heading 000T at a speed of 25 Knots, the display

will redraw:

a. In Home mode the GPS Chart Plotter centers the location of the vessel in the center of the display. To keep the vessel in the center of the display the GPS Chart Plotter will occasionally redraw.

b. If the vessel changes course greater than 330T or more than 30T the chart will be redrawn.

Static Navigation	:	Sets up a threshold for the speed. When the speed received from the positioning device is under that threshold, the GPS Chart Plotter displays zero. The default setting is 0.9 Kts.

13.1.0 Loran TD

The Loran TD selection allows the GPS Chart Plotter to be set up so the user can enter in LORAN TD's directly into the GPS Chart Plotter. After the TD's have been entered, and the user changes to ddd mm.sss (Degrees Minutes and Seconds) the TD's will be converted to Lat / Lon coordinates.

To use the TD Coordinate System the user must setup the Chain and Pair information of the TD's. If you do not know this information, refer to paper charts that show the Chain and Pair information.

ASF1/2	:	**Additional Secondary phase Factor (TD Coordinate System)** Correction to TD1/2 values which can be inserted by the user to take in account the additional signal propagation delay aver a mixed land/seawater path compared to on all-seawater path. Normally the user does not enter a ASF value. However for experienced users this function allows entering of signal delay values to fine adjust the calculated position. The user should enter delay values to fine adjust the position calculated.
Alter	:	**Alternate Solution (TD Coordinate System)** Parameter selected by the user that is applied in the conversion of geographical coordinates Lat/Lon to TD values. To be used if the position displayed is roughly not correct.

13.2 COMPASS

The GPS Chart Plotter computes compass direction from the constellation of GPS Satellites. For the GPS Chart Plotter to compute direction the vessel must be moving through the water unless connected to an optional Flux Gate Compass sensor. The Compass menu allows the GPS Chart Plotter to customize the following selections:

Bearings	:	Selects between True and Magnetic. When Magnetic bearings is enabled, the GPS Chart Plotter applies the selected MagneticVariation (Auto or Manual, see next paragraph) to compute Magnetic bearing.
Variation	:	Allows the user to select Auto or Manual. When Auto mode is selected the GPS Chart Plotter computes the ofset by the curent GPS fixed location. Manual mode allows the user to enter in a magnetic variation that is applied in the True conversion.
Calibration	:	This function allows a user to enter in the offset for areas that the vessel may cruise instead of entering in a manual offset for one location. This offset is useful for cruising vessels or vessels that travel internationally often.

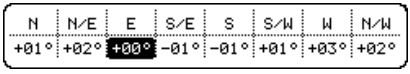


Figure 13.2 - Compass Table

13.3 ALARMS

The Alarms menu is used to select and setup audible and visual Alarms. Available alarms are Arrival, XTE, Depth, Anchor and Grounding Alarm.

Arrival Alarm	:	Alerts when the vessel is approaching a single destination point or when arriving at a leg in a Route. Available selections: 0.00 to 9.99NM.

XTE Alarm	: Alerts when the vessel is deviating from a defined course. Available selections: 0.00 to 9.99NM.
Depth Alarm	: Alerts when the received depth Value is lower than the selected value. Available selections: 0000 to 3000FT.
Anchor Alarm	: Alerts when the ships moves off a selected locations by a selected distance. Available selections: 0.00 to 9.99NM.
Audble Alarm	: Enables or disables the alarm beep.
Grounding Alarm	: This function looks ahead of the vessels heading to see if a potential danger exists. When the Grounding Alarm is enabled the GPS Chart Plotter will draw a triangle in front of the vessel on the Chart page showing the area that is being searched as shown below. The depth and range (distance) of the area the GPS Chart Plotter looks ahead for a shallow area can be set using this function.
Grounding Alarm Range	: This function allows setting the distance of the grounding alarm zone (the length of the sector to be detected) among the 0.25, 0.5, 1.0 Nm selections. When a depth or any of the searched objects is found in the scanned area, a tick marker is printed on the relative box in the Grounding Alarm Report page to identify which dangerous objects have been currently detected.
Grounding Alarm Report	: This function allows displaying a report of the dangerous objects currently detected.

The following warning appears when the Grounding Alarm is enabled:

NOTES

The Grounding Alarm function is available only if a NT+/MAX C-CARD is inserted. It also affects the screen redraw speed so we suggest to disable it when not used.

When any of the objects checked are found for the first time, the GPS Chart Plotter shows a pop up window to alert the user of the possible danger. The name of each new dangerous object found is reported in the warning window. In the Grounding Alarm Report page the relative item has a tick marker next to it, to identify the dangerous object currently detected. If in the next search cycle the same objects are found again, the alarm window will not be shown. Instead, if in the next searches the objects found before are no longer detected, their relevant item in the Grounding Alarm Report page is cleared (note that in this case, if the same object type is found again later, the Alarm will be shown). The GPS Chart Plotter shows an icon on the charts that identifies when a Grounding Alarm is detected.

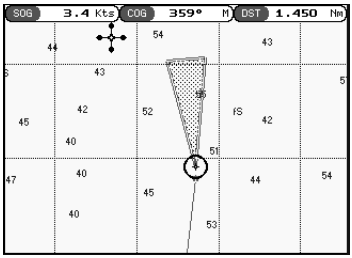


Figure 13.3 - Grounding Alarm

13.4 SIMULATION

The built-in Simulator function allows you to become proficient in the use of the GPS Chart Plotter, see the Simulation menu below:

Simulation Mode	: Three selections: a. Off - turn the simulation mode Off b. On - enable the simulator mode, where the speed and course are adjusted by entering in values in the Course and Speed selection discussed later in this table. c. Route - this selection allows you to navigate to a saved route.
Course	: To start the simulator you can insert the Course value.

Speed	:	To start the simulator you can insert the Speed value.
Date	:	To start the simulator you can insert the date.
Time	:	To start the simulator you can insert the time.
Cursor Control	:	Enables (On)/disables (Off) the cursor control. Moving the ShuttlePoint knob up or down will change the SOG and left or right will change the COG of the simulated vessel.
Demo Mode	:	In Demo mode the GPS Chart Plotter automatically places a Destination point on the Chart page and simulates navigation to the point. Also, the active page changes automatically every 10 seconds. The pages are shown in the following order: Start-up screen, GPS Status, Chart/Compass tape, Chart/Fish Finder, Full page Fish Finder, Full page Radar, Navigation, Highway, Celestial, NMEA. Once the Demo mode is enabled, pressing any key it is possible to temporally exit and returns to GPS Chart Plotter normal operation, but if you do not touch any key for 30 seconds Demo mode re-starts.

13.4.0 Navigating a Route in Simulation mode

This selection allows you to navigate to a saved Route to see how data windows on the Chart page and how the Navigation and Highway pages operate.

1. Create a Route. Refer to Par. 9.0 Route.
2. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
3. Move the ShuttlePoint knob down to highlight **ADVANCED SETUP**, then press **[ENT]**.
4. Move the ShuttlePoint knob to highlight **SIMULATION** and press **[ENT]**.
5. Move the ShuttlePoint knob to highlight **SIMULATION MODE** and press **[ENT]** to show a popup window.
6. Move the ShuttlePoint knob to highlight **ROUTE** and press **[ENT]** which will show a popup window with the Route(s) that are stored in the GPS Chart Plotter's memory.
7. Highlight the desired Route and press **[ENT]**.
8. Move the ShuttlePoint knob to highlight **SPEED** and press **[ENT]**.
9. Enter in the speed you want to vessel to travel at in simulation mode, by moving the ShuttlePoint knob left or right to select a number and up or down to change a number.
10. When the speed is adjusted, press **[ENT]**.
11. Press **[CLR]** multiple times until the chart page is shown.

13.5 DSC POLLING

This menu is used to enable or disable features related to the DSC function.

Auto Position	:	Selects between Manual or Auto. See also the Par. 12.8.1. When Auto Position item is set to **Manual** and receiving the Position Request, the Position Request pop-up window is not displayed and the cursor does not move to the position of the received Position Request data point. Otherwise when Auto Position item is set to **Auto**, the GPS chart plotter works as follows: 1 : when receiving the Position Request, the Position Request popup window is displayed; 2 : when selecting **VIEW ON CHART**, the position is indicated on the chart marked with "P". The cursor is moved to the point "P" and shows the point in the center of the screen; 3 : when moving the cursor from "P", the location can be confirmed. At this time, the same MMSI Position Request data that were received before are remaining and displayed.
Auto Info	:	Enables or disables the Auto Info. This selection is available only when Auto Position is set to Manual. If Auto Info is set to On, when receiving the Position Request it is possible to center the cursor over the top of the Position Request icon and show the Position Request popup window

14. AIS

AIS is an Automatic Identification System. It has been introduced to improve the safety of navigation by assisting in the efficient operation of ship-to-ship location reporting and VTS applications. The system should enable operators to obtain information from the ship automatically, requiring a minimum of involvement of ship's personnel, and should have a high level of availability. AIS transponders installed on IMO vessels use VHF frequencies to:

- Transmit details of their own vessel
- Receive details from other vessels or navigation aids within VHF range.

STANDARD HORIZON GPS Chart Plotters are able to display AIS target (for collision avoidance) on the Chart Page and AIS list pages when connected to a AIS receiver (GX2100 or GX2150 STANDARD HORIZON VHF/AIS transceiver) or transponders which output NMEA 0183 VDM sentence at 38400 or 4800 baud. The Chart Plotters are able to show targets from both Class A (commercial) and Class B targets.

14.0 SYSTEM DEFINITIONS

- **Target:** It is a vessel equipped with AIS. Information about the targets is being received by AIS Receiver and displayed on the screen.
- **CPA** : Closest Point of Approach is the closest distance that will be achieved between your vessel and the tracked target, based on your vessel's speed and direction and the target's speed and direction.
- **CPA Limit:** This is the distance from your vessel that a target may reach before a target is deemed a threat.
- **CPA Alarm:** Occurs if CPA is less or equal to CPA Limit. This test is done for active targets only.
- **TCPA:** Time to closest Point of Approach is the time remaining until the CPA will occur.
- **TCPA Limit:** This is the time remaining before the CPA is reached.
- **TCPA Alarm:** Occurs if TCPA is less or equal to TCPA Limit. This test is done for active targets only and if CPA value is less or equal to CPA Limit.
- **Radio Call Sign:** International call sign assigned to vessel, often used on voice radio.
- **Name:** Name of ship, 20 characters.
- **MMSI:** Maritime Mobile Service Identity.
- **MMSI number:** A unique 9 digit number that is assigned to a DSC radio station. It primarily registers the boat information in the U.S. Coast Guard's national distress database for use in emergency situations.
- **Active Target:** Target located within the Activation Range. Active target is represented by oriented triangle with COG and Heading vectors. Rate of turn may also be displayed.
- **Dangerous Target:** Target detected by CPA or TCPA Alarm. Dangerous target is Active Target by definition. For better visibility Dangerous Target symbol is flashing.
- **Sleeping Target:** Target located outside the Activation Range. Sleeping target is represented by a small oriented triangle.
- **Lost Target:** When the AIS info is not received from that vessel for 3.5 minutes. The presentation will be a flashing black triangle with a cross through.
- **Activation Range:** Range around your boat where targets become active. AIS target

become active within this range. Activation Range should be greater than CPA Limit by definition.

NOTE

A target is removed from the screen if data is not received for 10 minutes.
The maximum number of tracked Class A or B targets is 200.
This information is updated every 3 seconds to 6 minutes depending on speed and rate of turn, enabling the track of the vessels in range to be plotted.

TARGET STATUS	DESCRIPTION	SYMBOL
ACTIVE TARGET	Target located within the Activation Range.	
DANGEROUS TARGET	Target detected by CPA or TCPA Alarm. Dangerous Target is Active Target by definition.	
SLEEPING TARGET	Target located outside the Activation Range.	
LOST TARGET	Ais info is not received from that vessel for 3.5 minutes.	

Figure 14.0 - AIS Symbols

14.1 MENU

To configure the GPS Chart Plotter to receive AIS data, follow the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **AIS SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right. The new AIS menu appears on the screen. The available functions are described in the following table.

Display	:	Turns the display of AIS Targets overlay on the cartography On or Off. The default setting is On.
Activation Range	:	Defines the range from the fix within which the AIS Target becomes active. The values allowed are from 0.1 to 20 Nm. The default setting is 5 Nm.
CPA Alarm	:	Turns On or Off the alarm. The default setting is On.
CPA Limit	:	The values allowed are from 0.1 to 10 Nm. The default setting is 0.5 Nm.
TCPA Alarm	:	Turns On or Off the alarm. The default setting is On.
TCPA Limit	:	The values allowed are from 1 to 30 Min. The default setting is 10 Min.

14.2 AIS SETUP

Refer to Par. 2.4 for connections.

14.3 QUICK INFO ON AIS TARGET

By placing the cursor over a AIS Target icon using the ShuttlePoint knob, the following information is displayed (see the following picture):

- Vessel Name
- MMSI number
- Radio Call Sign
- SOG
- COG
- CPA and TCPA values

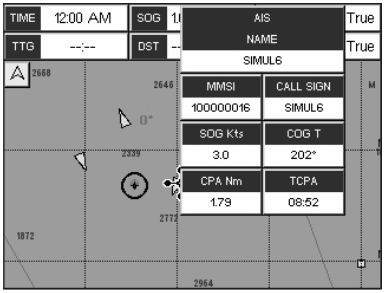


Figure 14.3 - Quick Info on AIS

NOTE

The selected AIS Target icon is surrounded by a square frame when user places the cursor over the icon.

14.4 LIST

It is possible to show the AIS List page that show basic information of the Target ship with the ability to select a Target ship and locate it on the chart.
Follow the procedure:

1. Press **[MENU]**, move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **AIS LIST** and press **[ENT]**.

AIS LIST

NAME CALL SIGN	MMSI	IMO NUMBER	SOG Kts COG T	CPA Nm TCPA
SIMUL0 SIMUL0	100000000	100000003	1.8 236°	3.18 --:--:--
SIMUL7 SIMUL7	100000007	100000010	1.0 38°	4.18 --:--:--
SIMUL1 SIMUL1	100000001	100000004	2.3 63°	--.-- --:--:--
SIMUL2 SIMUL2	100000002	100000005	1.6 186°	--.-- --:--:--
SIMUL3 SIMUL3	100000003	100000006	1.0 242°	--.-- --:--:--
SIMUL4 SIMUL4	100000004	100000007	3.0 14°	--.-- --:--:--

ENT to show the target on chart

Figure 14.4 - AIS List page

3. Move the ShuttlePoint knob up or down to select the Target and scroll the page up or down. Press **[ENTER]** exits the page and shows the Target ship on the Chart page along with the current position of the GPS Chart Plotter.

14.5 AIS TARGET COLORS

The received AIS Targets are shown in color. The color depicts the type of AIS ship shown on the Chart Page. Refer to following table.

TYPE OF SHIP	GRAPHICAL PRESENTATION
Undefined	△ (yellow)
Fishing	△ (white)
Pleasure Craft	△ (light green)
Tanker	△ (dark blue)
Pilot Vessel	△ (light gray)
SAR	△ (black)
Tug	△ (pale green)
Port tenders	△ (brown)
Vessels with antipollution facilities or equipment	△ (light blu)
Low enforcement vessels	△ (light red)
Medical transport	△ (dark green)
Vessels according to Resolution N^{o} 18 (Mob-83)	△ (cyan)
HSC	△ (red)
Passenger ship	△ (magenta)
Cargo ship	△ (dark gray)

Figure 14.5 - Color AIS Targets

15. C-WEATHER SERVICE

C-Weather is a **free** service available on the CPF180i and CPF300i. C-Weather service gives excellent coverage for the whole World. Weather forecasts are based on data received from the leading meteorological centers. This data is processed by Jeppesen server and made available via INTERNET connection to be transferred by using the C-Map By Jeppesen PC-Planner Windows Application. Then the weather data can be saved into a User C-CARD to be loaded by the GPS Chart Plotter (see Par. 15.0.1).
Features: 5-day weather forecast updated every 6 hours; coverage of 180x180 Nm with information frequency of 0.5° Lat/Lon; wind direction and strength; wave height and direction; ground temperature; level of humidity; visibility in miles.

Data Type	Display
WIND (Speed & Dir)	0
WAVE Height & Dir	1
TEMPERATURE	18°
HUMIDITY (%)	30
VISIBILITY	20
WEATHER TYPE: Sun	
WEATHER TYPE: Rain	
WEATHER TYPE: Fog	
WEATHER TYPE: Snow	
WEATHER TYPE: Clouds	
WEATHER TYPE: Partly Cloudy	
WEATHER TYPE: Thunderstorm	

Figure 15 - Weather data package

15.0 C-WEATHER SERVICE MENU

To select the menu:
1. Press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **C-WEATHER SERVICE** and press **[ENT]** or move the ShuttlePoint knob to the right.

The C-Weather menu is shown on the screen, the items are described in the following paragraphs.

15.0.0 Download

Allows to connect the software to the weather server and to download weather data directly via C-COM.

Select Country To Call	:	Allows the selection of the country to call. The whole telephone number set is automatically updated after every download.
SIM Pin	:	Allows inserting of the Pin of the SIM.
Download Area	:	Allows the weather download: a squared grey area, where the weather data will be downloaded, is centered on cursor position. See the following picture.

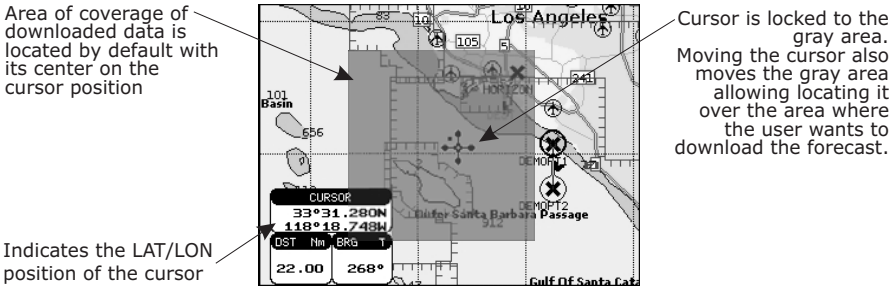

Area of coverage of downloaded data is located by default with its center on the cursor position
Los Angeles
Cursor is locked to the gray area. Moving the cursor also moves the gray area allowing locating it over the area where the user wants to download the forecast.
CURSOR
33°31.280N
118°18.748W
DST Nm
BRG T
22.00
268°
Indicates the LAT/LON position of the cursor
Gulf Of Santa Cat

Figure 15.0.0 - Example of Download Area

Press [LOAD] (or **[ENT]** for **/CPF180i**) **to activate the C-Weather Download**: the whole data package (see the previous "Weather data package" table) are downloaded. **[STOP]** (or **[CLR]** for **CPF180i**) allows to interrupt the data download. At the end of the operation press **[EXIT]** (or **[CLR]** for **CPF180i**) to close the window.

15.0.1 Copy From User C-CARD

Allows the whole data package C-Weather loading from the User C-CARD.

15.0.2 Weather Forecast

Allows selecting the Layer of specific weather data to be displayed on the screen and to change date and time of the forecast preview. The following functions are available:

- **Panning**: default usage of the cursor key is the normal panning function.
- **Zoom in/out**: zoom in/out functions are allowed as usual by using **[ZOOM IN]/[ZOOM OUT]**.
- **Set of date and time**: **[DATE]** (or **[GOTO]** for CPF180i) to modify date and time values.
- **Layer selection**: **[LAYER]** (or **[MENU]** for CPF180i) to cycle of the weather layers.
- **Exit**: **[EXIT]** (or **[CLR]** for CPF180i) to close the weather prediction page.

15.0.3 Real Time View

The following selections are available:

- **Real Time View On**: the data is shown (the area of the download) at the current date and time (received from the GPS).
- **Real Time View Off**: the Weather data is not displayed.

The layer displayed is the one selected into the previous menu item.

15.0.4 Type of Data

Allows selecting the type of data, refer to the table in the Figure 15.

16. MOBILARM

The MOBILARM is an automated crew monitoring system dedicated to monitoring onboard crew by maintaining a constant link between the crew member and the boat. When a man over-board event happens, an automatic alarm is sounded, and the vessels position is shown on the Standard Horizon GPS Chart Plotter.

16.0 MOBILARM-GPS CHART PLOTTER CONNECTION

Connect the MOBILARM system to one of the Ports on the Standard Horizon GPS Chart Plotter. Refer to Par. 2.4.0 “Connection Table” for CPF180i, Par. 2.4.2 “Connection Table” for CPF300i and MOBILARM Owner’s Manuals for connections.

Connection Example

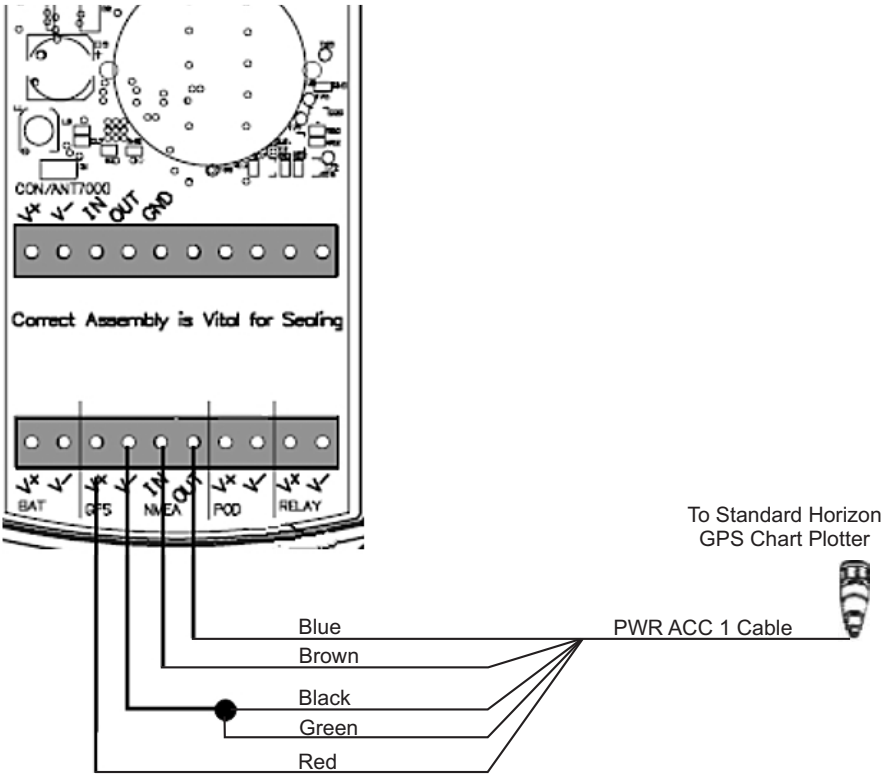


Figure 16.0 - Connection Example

NOTE

Note the CPF180i only has one NMEA Input so Port1 will have to be set to MOBILARM. The CPF300i has 3 Ports so Port 1, 2 or 3 can be be used.

Port 1 Example

Chart Plotter	MOBILARM
Blue	NMEA Out
Brown	NMEA In
Red	GPS V+
Black	GPS V-

NOTE

Refer to the Figure 16.0, the Blue and Brown wires are from Port1. If these wires are being used to connect to another NMEA device, choose another wire pair and configure the port associated with the wires.

16.1 SOFTWARE SETUP

After the Port has been chosen and connected in Par. 16.0, the GPS Chart Plotter must be setup to communicate with the MOBILARM.
Use the steps below to set up the Port the MOBILARM is connected to the GPS Chart Plotter.

1. Select the Chart page.
2. Press **[MENU]**. Move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
3. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT] or** move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **IN/OUT CONNECTIONS** and press **[ENT] or** move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob to highlight any input port and press **[ENT] or** move the ShuttlePoint knob to the right.
6. Move the ShuttlePoint knob up/down to select **MOBILARM** and press **[ENT]** or move the ShuttlePoint knob to the right. Selecting MOBILARM format, activates the function.
7. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page is shown.

The GPS Chart Plotter continuously verifies the communication status with MOBILARM PTX (Personal Transponder) device. When a signal from the PTX is lost for more than one minute, the MOBILARM sends a NMEA message to the GPS Chart Plotter which will produce an alarm and a popup window will be shown on Standard Horizon GPS Chart Plotter.

16.2 MOBILARM STATUS

To confirm the status of the MOBILARM, select the About page:

1. Select the Chart page.
2. Press **[MENU]** two times. Move the ShuttlePoint knob to highlight **About...** and press **[ENT]**.

On the About page you can see the status of the MOBILARM, below are the possible messages.

a. **Function not Activated** : MOBILARM has not been setup in the I/O Connections

menu. Refer to Par. 16.1.

b. **Not connected/detected** : possible wiring problem, confirm wires are correct connected from the GPS Chart Plotter to the MOBILARM device.

c. **Connected** : the communication with MOBILARM device is Ok.

d. **Signal Lost** : the MOBILARM has been connected in the past, however no signal is being detected from the MOBILARM. Check wire connections from the GPS Chart Plotter to the MOBILARM.

e. **No valid GPS position** : the communication with MOBILARM device is Ok, but the GPS position fix is not received from the GPS Chart Plotter.

See the following example of About page:

(1) MOBILARM status Information

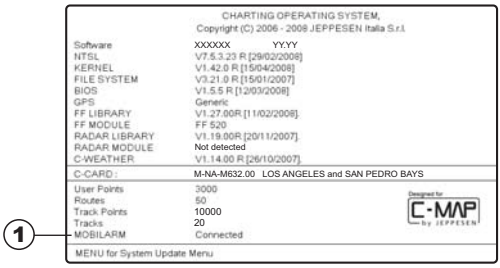


Figure 16.2 - Example of About page with MOBILARM information on CPF300i

16.3 MOBILARM PTX

A PTX is the Personal Transponder device that is worn by the crew. If a crew member falls in the water the MOBILARM sends a signal to the GPS Chart Plotter which creates and displays a PTX icon on the Chart page.

16.3.0 MOBILARM MOB alert is received

When crew member falls in the water, the MOBILARM sends a signal to the GPS Chart Plotter which creates and displays a PTX MOB icon on the Chart page.

Figure 16.3.0 - The PTX icon

On the GPS Chart Plotter all menus and/or pages are closed and the chart is centered on the PTX MOB received position. A Audible Alarm is heard and a pop-up warning window appears to notify that a PTX has been received:

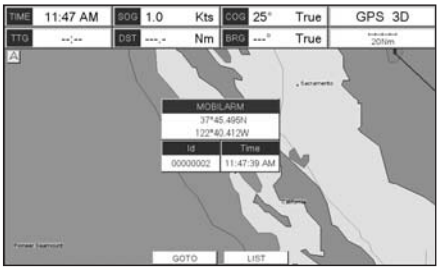


Figure 16.3.0a - Example of PTX warning window on CPF300i

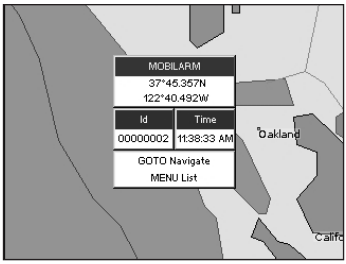


Figure 16.3.0b - Example of PTX warning window on CPF180i

It is possible to Goto (navigate) to the received MOBILARM PTX position (see Par. 16.4.1) or open the MOBILARM Alarm Status List page (see Par. 16.4.2). Selecting Goto or Alarm Status List will mute the Audible Alarm.

NOTE

When the same PTX is received again:
a. If the received PTX is not the active one, the user must confirm to navigate to it.
b. If the received PTX is the active one, navigation data is updated. The PTX icon appears at the new position and a pop-up warning window appears.

16.4 PLACING CURSOR ON THE PTX ICON

Moving the ShuttlePoint knob so the cursor is over the PTX icon on the Chart page will show an information window and allow you to Goto the location of the PTX, delete the PTX icon or show the Alarm Status list as shown below.

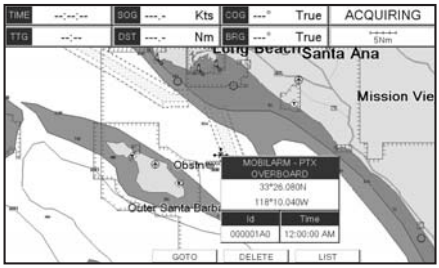


Figure 16.4 - Example of PTX information window on CPF300i

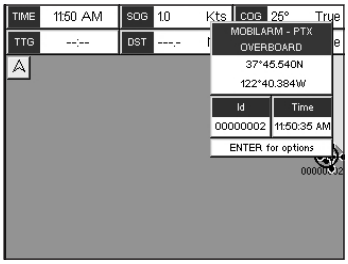


Figure 16.4a - Example of PTX information window on CPF180i

16.4.0 Delete PTX

The Delete PTX function permamently removes the selected PTX from the MOBILARM Alarm Status List and from the Chart page.
Using the ShuttlePoint knob, move the cursor over the PTX icon and then:

ON CPF180i
press **[ENT]**, select **DELETE** using the ShuttlePoint knob and press **[ENT]**. A warning pop-up window will be shown. Select **YES** and press **[ENT]**.

ON CPF300i
press **[DELETE]** A warning pop-up window will be shown. Select **YES** and press **[ENT]**.

16.4.1 Goto PTX

When Goto is selected on the GPS Chart Plotter, navigation will start to the PTX icon location. After the GPS Chart Plotter has received a PTX MOB alarm, using the ShuttlePoint knob move the cursor over the PTX to navigate to and then:

ON CPF180i
press **[ENT]**, select **GOTO** using the ShuttlePoint knob and press **[ENT]**.

Figure 16.4.1 - Example of Goto PTX on CPF180i

ON CPF300i
two Soft Keys under the display will be shown:

a. **[GOTO]**, when pressed will start navigating to the PTX MOB location
b. **[LIST]**, when pressed will show the MOBILARM Alarm Status List page. Refer to Par. 16.4.2 for Alarm Status List.

Figure 16.4.1a - Example of Goto PTX on CPF300i

If the navigation is set to the selected PTX icon, to terminate the navigation:

ON CPF180i
press **[ENT]**, select **STOP GOTO** using the ShuttlePoint knob and press **[ENT]**.

Figure 16.4.1b - Example of Stop Goto PTX on CPF180i

ON CPF300i
press **[StopGoto]**.

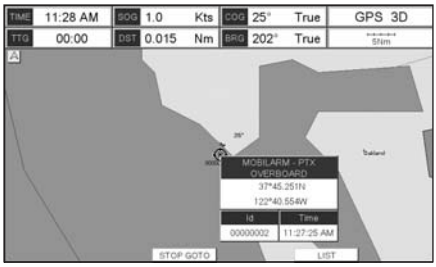


Figure 16.4.1c - Example of Stop Goto PTX on CPF300i

16.4.2 The MOBILARM Alarm Status List

The MOBILARM Alarm Status List shows the list of all PTX that the GPS Chart Plotter has received an alarm from. To review the page:

1. Select the Chart page.
2. Press **[MENU]** to show the Main menu.

3. Move the ShuttlePoint knob to highlight **USER POINTS** and press **[ENT].**
4. Move the ShuttlePoint knob to highlight **MOBILARM** and press **[ENT].**

(1) PTX number

(2) Time the PTX alarm was received

(3) PTX position

(4) PTX status

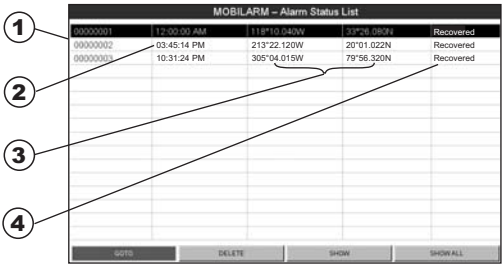


Figure 16.4.2 - Example of MOBilarm PTX List page on CPF300i

This page allows you to:

GOTO	Activates navigation to the selected PTX. Once the navigation has been activated, close all menus/data pages (if open) and center the chart selected PTX.
DELETE	Deletes the selected PTX.
SHOW	Centers the chart on the selected PTX.
SHOW ALL	Selects the best chart scale to see al PTX icons on the chart at the same time.

17. FISH FINDER

The Fish Finder consists of a high power transmitter, sensitive receiver and a transducer. The Fish Finder sends an electrical pulse to the transducer, which contains an element that converts the pulse into acoustic (sound) waves, which is sent through the water. As this wave travels from the transducer to the bottom, it may strike fish, structures, thermalclines (temperature changes in the water). When the wave strikes an object(s) a certain amount of the wave is reflected back to the transducer depending on the composition and shape of the object. When the reflected wave is returned to the transducer it is converted into a voltage and is amplified by the receiver, processed and sent to the display. The speed of sound in water is roughly 4800FT/sec, so the time lapse between the transmitted signal and the received echo can be measured and the distance to the object determined.

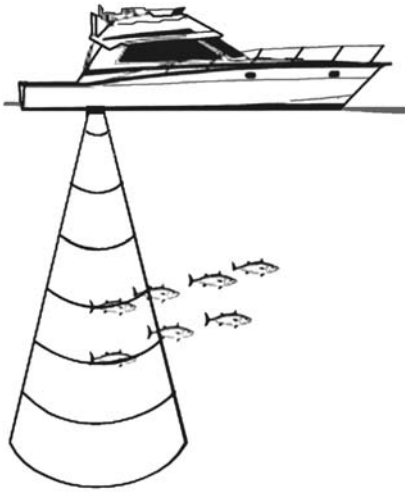


Figure 17 - Fish Finder working principle

17.0 ENABLE/DISABLE

The internal Fish Finder may be enabled (default setting) or disabled by the following procedure:

1. From the Chart page, press **[MENU]**, move the ShuttlePoint knob to highlight **SETUP MENU** and press **[ENT]**.
2. Move the ShuttlePoint knob to highlight **ADVANCED SETUP** and press **[ENT]** or move the ShuttlePoint knob to the right.
3. Move the ShuttlePoint knob to highlight **IN/OUT CONNECTIONS** and press **[ENT]** or move the ShuttlePoint knob to the right.
4. Move the ShuttlePoint knob to highlight **FISH FINDER** and press **[ENT]** or move the ShuttlePoint knob to the right.
5. Move the ShuttlePoint knob up/down to select **OFF** and press **[ENT]** or move the

ShuttlePoint knob to the right.

6. Press **[CLR]** or move the ShuttlePoint knob to the left until the Chart page is shown.

17.1 UNDERSTANDING THE FISH FINDER PAGE

The display on CPF180i and CPF300i shows a time history of the echoes received by the transducer. The CPF180i and CPF300i have a menu that allows adjustments to receiver sensitivity, depth range and scrolling speed of the Fish Finder display.

1. Warning message
2. Fish Finder window
3. Digital Depth
4. Water temperature
5. Shallow Alarm Bar
6. Range Bar
7. Variable Depth Marker (VDM)
8. A-Scope
9. Deep Alarm Bar
10. Transmit Frequency

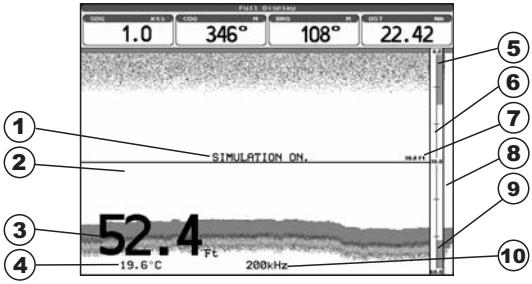


Figure 17.1 - The Fish Finder page

The following is a brief description of terms listed in the previous Figure:

1. **Warning Message**
   Flashing label that is turned On when the echo sounder is in Simulation mode.
   The following is the list of the warning messages (see also Par. 5.8):
   - SHALLOW WATER
   - DEEP WATER
   - HIGH WATER TEMP
   - LOW WATER TEMP
   - WATER TEMP RATE
   - FISH SPOT
   - NO DATA

2. **Fish Finder window**
   Graphic presentation of sonar soundings recorded as a continuous profile scrolling across the screen from right to left. Such recordings represent the image of the water beneath your boat, items appear as they pass under your transducer; the items on the right side of the screen are closer to you than those on the left. The correct interpretation of the Fish Finder page allows retrieving useful information about what is under the boat.

3. **Digital Depth**
   Readout of the current bottom depth.

4. **Water Temperature**
   Readout of the current water temperature returned by the temperature sensor included in DST520, DST521, DST523, DST525, DST526, DST527, DST528A.

5 Shallow Alarm Bar
Located on the right side of the Range Bar, the Shallow Alarm Bar shows the range outside of which the depth measurement will trigger a Shallow Alarm.

6 Range Bar
Vertical graduated bar that is located along the right side of the screen. It is a scale which reflects the depth of the area being displayed.

7 Variable Depth Marker (VDM)
Horizontal line on to the Fish Finder page window with a depth label. Move the ShuttlePoint knob Up or Down to change the position of the VDM. The label displays the depth of the cursor position. The VDM can be moved to any location pinpointing the depth of a target.

8 A-Scope
Real time representation of fish and bottom features passing through the beam of the transducer, drawn as column of horizontal lines whose length and hue is proportional to the echo strength returned. The color of the echo strength depends on the selected display color. When the default palette is selected, the strongest sonar returns will be shown as red and weaker returns will be shown blue.

9 Deep Alarm Bar
Bar located on the left side of the Range Bar, showing the portion of the Echogram currently represented in the zoomed window (on the left part of the screen). It is turned On selecting the Echosounder Split page.

10 Transmit Frequency
Shows the selected depth transmit frequency. As a reference, 200kHz selection is normally used to see targets in depth up to 400FT, and 50kHz is used in water over 400FT.

17.1.1 Understanding the Fish Finder display

1. Fish
2. Thermoclines
3. White Line
4. Surface Clutter
5. Structures
6. Bottom Echo Profile

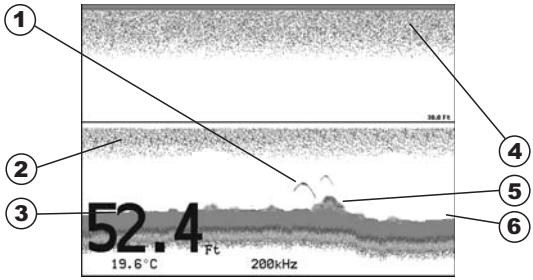


Figure 17.1.1 - The Fish Finder display

1 Fish
Fish are usually represented by small dots on the display when using 200kHz and by arches when using 50kHz.

2 Thermoclines
Are the zones where two layers of different water temperatures meet. The greater the temperature differential, the denser the thermocline shows on the screen. Thermoclines are represented as horizontal stripes of noise. They are very important for fishing since often many species of game fish like to suspend in, just above, or just below the

thermoclines.

③ **White Line**
The White Line shows the difference between hard, soft bottoms and even distinguishes between fishes and structures located near the bottom. In this way it is easier to tell the difference between a hard and soft bottom and even to distinguish fishes and structures located nearby the bottom.

④ **Surface Clutter**
Appears like noise at the top of the screen extending many feet below the surface. It's caused by many things, including air bubbles, bait fish, plankton and algae.

⑤ **Structures**
Generally, the term "structure" is used to identify objects like wrecks and weeds rising from the bottom.

⑥ **Bottom Echo Profile**
Bottom profile recorded by the Fish Finder. When the echo sounder is set in Auto Range mode, the bottom is kept in the lower half in the display.

17.2 DISPLAYING THE FISH FINDER PAGE

This section explains how to show and customize the selection of the Fish Finder display pages.

1. From all pages (except the Fish Finder page), press **[MENU]**.
   From Fish Finder page, press **[MENU]** two times.

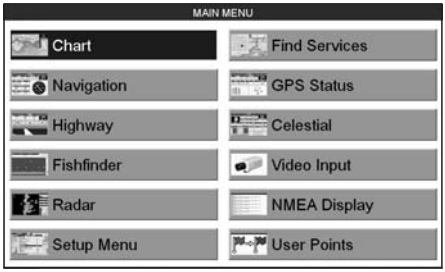


Figure 17.2 - Main Menu on CPF300i

2. Move the ShuttlePoint knob to highlight **FISH FINDER** on CPF300i or **RADAR/FISH** on CPF180i; press **[ENT].**

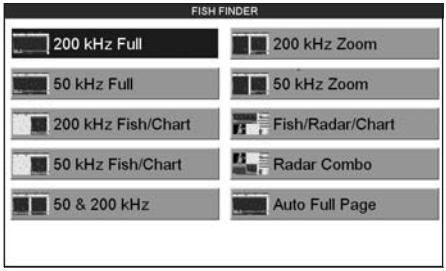


Figure 17.2a - Fish Finder page selection menu on CPF300i

3. Move the ShuttlePoint knob to select the desired display and press **[ENT]**. The Page options are shown in the following paragraphs.

17.2.0 Auto Full Page

When this page is selected, the Fish Finder automatically changes the transmit frequency to show depths. Automatic switching occurs when depth of water is less than 400FT (200kHz) and greater than 400FT (50kHz).

17.2.1 200 kHz Full, 50 kHz Full and 50&200kHz Display Pages

Allows the user to setup the GPS Chart Plotter display to show 200kHz, 50kHz or 200/50 kHz split screen Fish Finder.

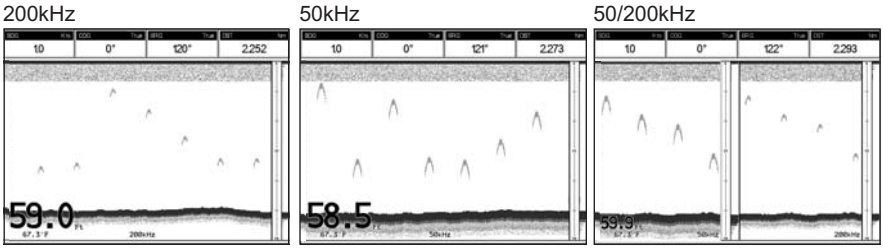


Figure 17.2.1 - Full Display pages

17.2.2 200 kHz and 50 kHz Zoom Pages

Allows the user to zoom into the 200kHz or 50kHz Fish Finder display to show detail of the area selected by the VRM (Variable Range Marker). Referring to Figure 17.2.2, the left display shows the zoomed display and the right display shown the unzoomed display.
To select the area to be zoomed in move the ShuttlePoint knob Up or Down which moves the VRM line.
To zoom In or Out, press **[ZOOM IN]** or **[ZOOM OUT]**.
The zoom ranges are 2x and 4x the normal Fish Finder display.

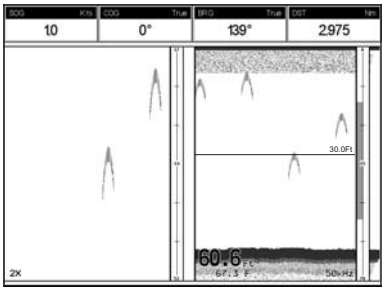


Figure 17.2.2 - Zoom Full page

17.2.3 200 kHz and 50 kHz Fish/Chart Pages

Selects the GPS Chart Plotter display to show the Chart page on the left half of the screen and the Fish Finder on the right half of the screen. 200kHz or 50 kHz Fish Finder can be selected on the right half of the display.

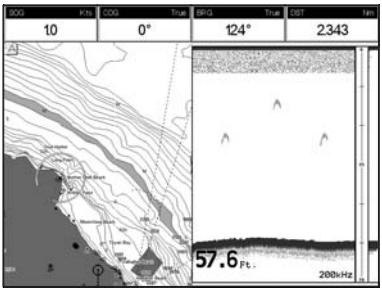


Figure 17.2.3 - Fish/Chart page

On the CPF180i when the Fish/Chart Page has been selected use **[FIND]** to place the focus on the Chart page or on the Fish Finder window.
On the CPF300i please see the following paragraph.

17.2.3.0 Focus Soft Key on FISH/CHART Page (ONLY FOR CPF300i)
When the Fish/Chart Page has been selected and one of the Soft Keys is pressed, a **[Focus]** Soft Key will be shown.

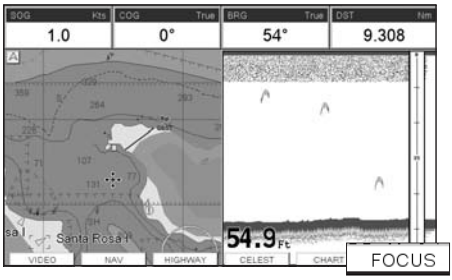


Figure 17.2.3.0 - Example of Chart/Fish page with **[Focus]** shown

When **[Focus]** is pressed the Chart Plotter places the focus on the Chart page or on the Fish Finder window. With the focus on the Chart page the cursor may be moved and all chart menus can be selected. When focus is on the Fish Finder window the Variable Range Marker can be moved to see the depths of targets and Fish Finder menus can be accessed.

17.2.4 Radar Pages (ONLY FOR CPF300i)

17.2.4.0 Fish/Radar/Chart Page
Selects the GPS Chart Plotter display to show the Chart, the Fish Finder and the Radar page on the screen.

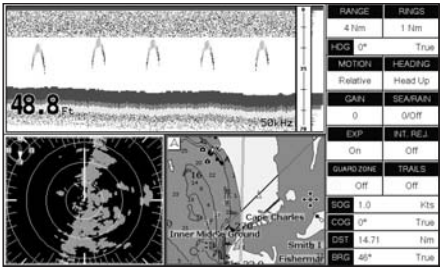


Figure 17.2.4.0 - Fish/Radar/Chart page

17.2.4.1 Radar Combo Page

Selects the GPS Chart Plotter display to show the Chart, the Fish Finder, the Radar and the Higway page on the screen.

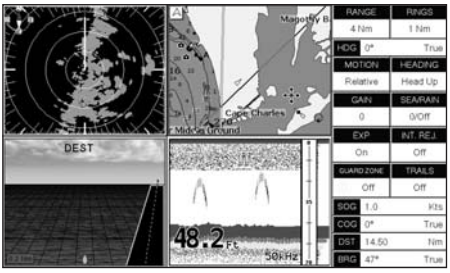


Figure 17.2.4.1 - Radar Combo Page

17.2.4.2 Focus Soft Key

When the Fish/Radar/Chart page or the Combo page has been selected, the active window is highlighted a "red" boarder around the window. The keyboard commands are related to that focused view. To move the focus to a different window follow the procedure:

1. Press any Soft Key. The Soft Key labels appear on the bottom of the screen.
2. Press **[Focus].** A popup window appears where the active focus window label is highlighted.

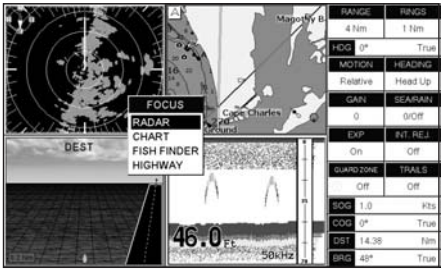


Figure 17.2.4.2 - Example of Combo page with **[Focus]** shown

3. Move the ShuttlePoint knob to highlight the desired window and press **[ENT]**. The red boarder is moved to the focused window.

17.3 SOFT KEY OPERATION (ONLY FOR CPF300i)

1. Press any of the Soft Keys to show the key descriptions, then press the [200kHz] Soft Key if it has been customized (for detail see the Par. 3.7).

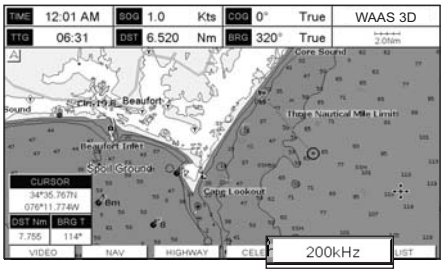


Figure 17.3 - Example of Fish Finder page selection by Soft Keys

17.4 SETUP MENU

This section explains how to show the Fish Finder Setup menu and describe the Fish Finder Setup menu sub-options.

1. From the Full Fish Finder page, press **[MENU]**. The following menu appears:

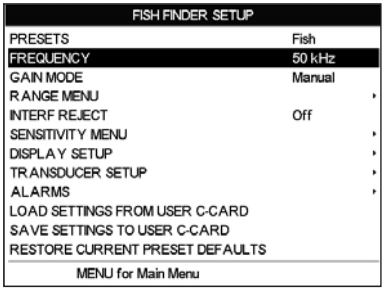


Figure 17.4 - Fish Finder Setup menu

17.5 PRESETS

To simply menu selections, the Fish Finder has two presets that can be easily selected for Fishing or Cruising:

	FISH	CRUISE
Gain	Auto	Auto
Range mode	Auto	Auto
Gain offset	0%	10%
Shift	0	0
STC	Short	Short
Noise level	2	4
Scrolling Speed	10	10
Fish Symbols	Echo	Echo
A-Scope	On	On
Surface Declutter	4	4

Figure 17.5 - Presets table

NOTE

For Gain and Gain Offset settings refer to Sensitivity menu (see Par. 17.10).
For Range and Shift settings refer to Range menu (see Par. 17.8).

17.6 FREQUENCY

Allows you to choose the frequency among Auto, 50 kHz, 200 kHz or 50&200 kHz when single frequency page is selected.

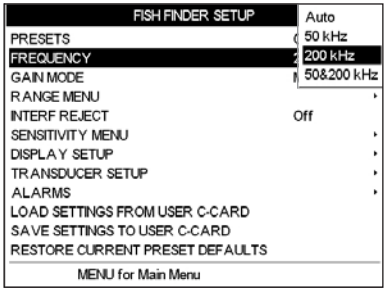


Figure 17.6 - Frequency menu

17.7 GAIN MODE

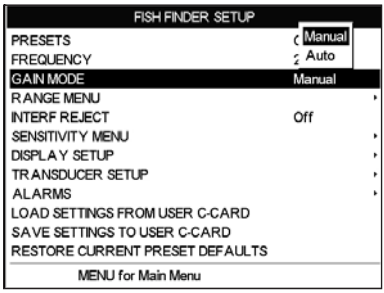


Figure 17.7 - Gain Mode menu

17.7.0 Auto Mode

Allows the Fish Finder to automatically adjust receiver Gain depending on water depth.

17.7.1 Manual Mode

Allows the user to change the Gain manually to fine tune the Fish Finder's receiver.

17.8 RANGE MENU

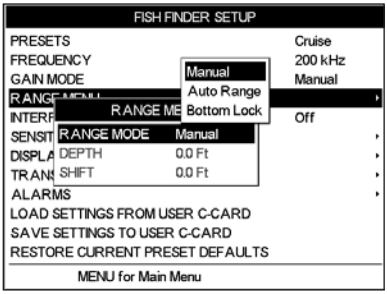


Figure 17.8 - Range menu

17.8.0 Range Mode

Selects among Manual, Auto Range and Bottom Lock.

17.8.0.0 Manual Mode
Used to set the depth Range (from the surface) the Fish Finder display will show.

17.8.0.1 Auto Range
The Fish Finder determines automatically the Range as to keep the bottom visible in the lower bottom of the screen. In this mode, Shift is always set to 0.

17.8.0.2 Bottom Lock

The Bottom Lock function keeps the screen display locked onto a certain Range around the bottom. Let's say the bottom is 400FT and the Bottom Lock Range is set to display 30FT around the bottom, the screen (instead of displaying from 0FT to e.g. 450FT) will display only a Range of 30FT around the bottom, e.g. from 380FT to 410FT.

17.8.1 Depth

Moves the display from showing the bottom to the depth value entered.

17.8.2 Shift

Shifts the display from the bottom of the transducer to the depth value entered.

Example: Your vessel is in about 57FT of water, however there is fish suspended in 35FT of water. You want to display to 10FT area around the fish. Shift would be set to 30FT and Depth would be set to 40FT shown in example below.

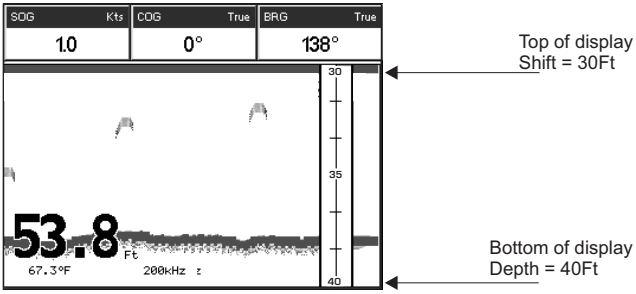


Figure 17.8.2 - Example of Depth and Shift

17.9 INTERFERENCE REJECTION

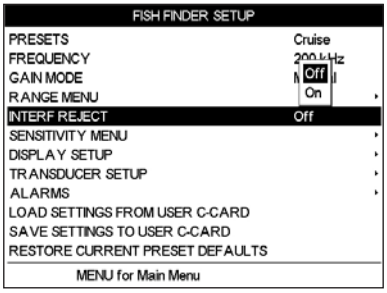


Figure 17.9 - Interference Rejection menu

Turns On or Off a filter to remove noise from other Fish Finder or Depth Sounders that may be near by when fishing.

17.10 SENSITIVITY MENU

All settings in the Sensitivity menu are related to the selected Fish Finder transmit frequency (50 or 200kHz).

SENSITIVITY MENU	
GAIN	0 %
STC	Off
STC STRENGTH	0 %
SURF NOISE FILT	Off

Figure 17.10 - Sensitivity menu

17.10.0 Gain

Allows you to control the Sensitivity of the unit's receiver from 0 to 100%. To see more detail, increase the receiver Sensitivity by selecting a higher Gain percentage. If there is too much detail or if the screen is cluttered, lowering the Sensitivity may increase the clarity of the display.

NOTE

When the Gain Mode option is set to Auto, the receivers Gain cannot be changed.

When the Gain Mode option is set to Manual, the Gain can be manually adjusted. When switching from Automatic to Manual Mode, the Gain + Offset value is copied into the Manual Gain setting of the receiver.

17.10.1 STC (Sensitivity Time Control)

The STC function attenuates echos from surface down to the specified STC depth by changing the sensitivity of the receiver, decreasing it near the surface and gradually increasing it as the depth increases.
STC impacts bottom finding so can be particularly useful i.e. to better track a rock sea bottom distinguishing it from the mud in suspension over it for example when close to rivers outlet to the sea (consider to use at same time also Dual Frequency mode and White Line for an easier identification of real sea bottom), as well as to solve issues in false bottom detection when in presense of significant surface clutter.
Its default value is SHORT for the 200 kHz frequency and MID for the 50 KHz frequency. Such values are good in most conditions. However when navigating in very shallow waters it may be necessary to switch it to OFF, while in very deep waters with a lot of Surface Clutter it may be better to increase it to MID or LONG.

NOTE

In some situations it may be necessary to adjust the STC so the sounder can read through the surface noise and show the bottom. One indication that the STC needs to be changed is when the display intermittently changes the depth from the correct depth to a very shallow depth.

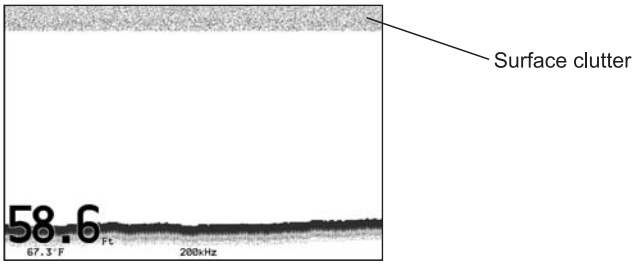


Figure 17.10.1 - STC - Surface Clutter

The STC can be changed from Short, Mid, Long and Custom.

17.10.1.0 STC Length

This is the depth range which the STC operates. In custom mode it can be varied from 0FT to 1000FT (60FT or 255FT on previous software versions). In preset mode it's value is reported in the following table (See Par. 17.10.1.2).

17.10.1.1 STC Strength

It is the starting attenuation value of the STC. It acts by attenuating the Gain of the given percentage value. In custom mode it can be varied from 0% to 100%. The STC effect is maximum near the surface, to mitigate the Surface Clutter and it progressively diminishes to 0 at the selected STC depth.

17.10.1.2 Preset values table

	OFF	Short	Mid	Long
STC Depth (Ft)	1	60	60	255
STC Length	0	10%	30%	57%

Figure 17.10.1.2 - STC Preset values table

If in VERY SHALLOW WATER the Fish Finder display is showing a bottom or digital readout deeper than the actual depth this situation may occur if STC is set to LONG or MID when the bottom is shallow. This issue may be resolved by adjusting the STC value to SHORT or even to OFF in very shallow waters.
If in DEEP WATER the Fish Finder display is showing a very shallow bottom or digital readout this may happen because in conditions of strong Surface Clutter the Fish Finder may erroneously look on to the Surface Clutter. To solve this situation try to increase the STC to LONG or to CUSTOM increasing the STC length and strength.
If in DEEP WATER the Fish Finder doesn't see the bottom, this may happen because the bottom is out of range or is very near to the maximum depth that can be tracked by the Fish Finder. In the latter case this may happen if the bottom composition is soft as mud, if the sea conditions are bad, there are thermoclines or the water is full of suspended materials (silt, plankton). All these factors may affect considerably the performance of the Fish Finder to be able to see the bottom. In these cases change the RANGE MODE from AUTO to MANUAL Range and manually adjust the depth range until the bottom echo becomes visible on the Fish Finder display.

17.10.2 Surface Noise Filter

An automatic filter that attempts to dynamically remove Surface Clutter that causes the screen to be filled up with strong return echoes just below the surface. It may seem that the same functionality could be archived using on the STC control however there is main difference between such control in fact the STC control impacts the capability to detect and track the bottom and is not designed to cancel completely the surface noise, on the other side the Surface Noise Filter attempts to cancel completely the surface noise but it doesn't affect the capability to detect and track the bottom.
Filter gradually attenuates surface noises. The Surface Noise Filter has 9 settings: OFF, 1, ..., 8. When it is set to OFF the Surface Noise is not cancelled. When it is set to 1 the Surface Noise is attenuated from surface down to a depth of 5 Ft, increasing the Surface Noise

increases the depth in which the Surface Noise is attenuated as well as the attenuation level increases; when the preset is set to 8 the attenuation is maximum and is applied from surface level down to a depth of 255 Ft, as shown in the Surface Noise Filter Table reported below:

Surface Noise Filter Depth								
Preset	1	2	3	4	5	6	7	8
Depth (Ft)	5	10	15	20	30	60	130	255

Figure 17.10.2 - Surface Noise Filter Depth table

17.11 DISPLAY SETUP

Allows the Fish Finder's display page appearance to be changed.

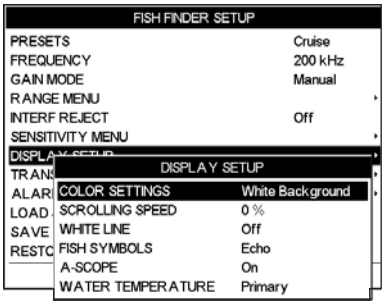


Figure 17.11 - Display Setup menu

17.11.0 Color Settings

Allows you to change the color of the Fish Finder display from Blue (default), White, Black, Gray scale.

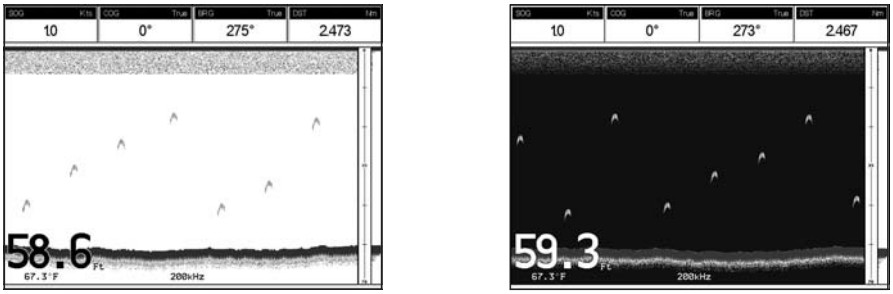


Figure 17.11.0 - White and Blue background examples

17.11.1 Scrolling Speed

Controls the rate the Fish Finder scrolls and updates the Fish Finder display.

17.11.2 White Line

Controls how the bottom type (hard or soft) is shown on the display. When the White Line is Off the bottom return will display as red. When the White Line is On it can be used to determine bottom hardness.

17.11.3 Fish Symbols

Controls the graphical representation of underwater-suspended targets.

Echo	: shown as arches (echoes)
Icon + Echo	: shown as arches with the Fish icon
Icon + Echo + Depth	: shown as arches with the Fish icon and relative depth values
Echo + Depth	: shown depth values
Icon	: shown as Fish icons without the arches
Icon + Depth	: shown as Fish icons and their relative depth values (shown accordingly to currently selected depth unit)

17.11.4 A-Scope

Shows the real time display of the echo from the bottom.

17.12 TRANSDUCER SETUP

This menu allows you to calibrate the speed through the water, water temperature and the keel/prop offset of the transducer.

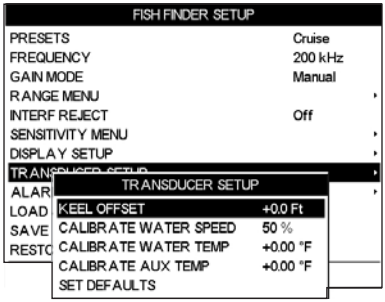


Figure 17.12 - Transducer Setup menu

17.12.0 Keel Offset

The keel offset can be set to cause the Fish Finder to display an offset depth below the keel or the actual water depth from the surface. To setup to show the depth below the keel, enter a negative depth value or a positive depth to show offset from the transducers face to the water surface.

17.12.1 Calibrate Water Speed

Used to calibrate the Water Speed readings from the transducer. Adjustment can be made from -10% to +10%.

17.12.2 Calibrate Water Temp

Used to calibration on the Water Temperature sensor in the transducer.

17.12.3 Set Defaults

Restores the factory settings.

17.13 ALARMS

The Alarms menu allows you to define alarm settings for Shallow Alarm, Depth Alarm and Temperature Upper/Lower/Rate.

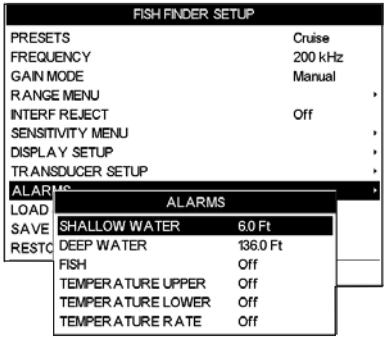


Figure 17.13 - Alarms menu

To set an Anchor Alarm, enter in a shallow water and deep water value above and below your actual anchoring depth. The alarm will sound when the depth becomes shallower or deeper than the settings.

17.13.0 Shallow Water

Triggers an alarm when depth becomes shallower than the set depth.

17.13.1 Deep Water

Triggers an alarm when depth becomes deeper than the set depth.

17.13.2 Fish

The Fish Alarm can be set to detect and alert you depending on the size of fish. The options are: Off, Small, Medium, Big and Huge. The alarm sounds if the set size (or bigger) is detected.

17.13.3 Temperature Upper

Triggers an alarm when the transducer reports a temperature above the set temperature.

17.13.4 Temperature Lower

Triggers an alarm when the transducer reports a temperature below the set temperature.

17.13.5 Temperature Rate

Triggers an alarm when the transducer reports a temperature variation rate above the set temperature.

17.14 SAVE SETTINGS TO USER C-CARD

This option saves the complete set of Fish Finder settings to an optional User C-CARD. This is useful to avoid the user having to retune up Fish Finder after a RAM Clear operation or a software update.

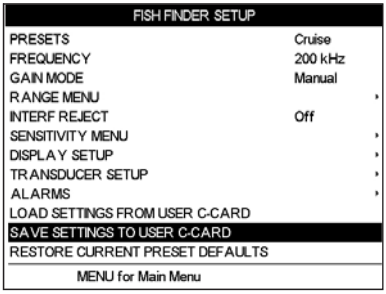


Figure 17.14 - C-CARD - Save settings

17.15 LOAD SETTINGS FROM USER C-CARD

This option loads the complete set of Fish Finder settings from the User C-CARD (Memory Card that may be used to backup the User Points and Tracks too).

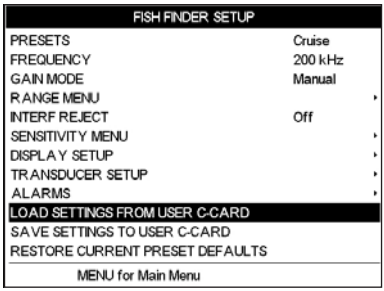


Figure 17.15 - C-CARD - Load settings

17.16 RESTORE CURRENT PRESET DEFAULTS

This option restores the default values only for the current presets and does not affect the other presets.

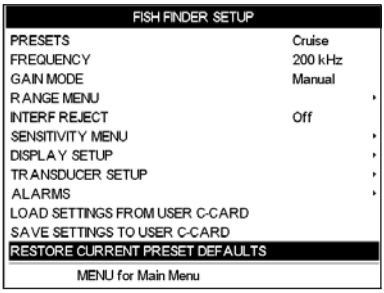


Figure 17.16 - C-Card - Restore settings

18. TROUBLESHOOTING

The GPS Chart Plotter does not turn On. The voltage or the polarity may not be correct. Make sure that the correct voltage (10-35 volt dc) is present. Check also that the polarity is correct.

The GPS Chart Plotter does not get a valid fix. The external WAAS GPS antenna may not be in a open sky position or the antenna cable may not be properly connected. Make sure that no metal obstacle (solar panel about the plotter) is placed around the chart plotter (or external antenna when connected) acting as a shield for the antenna and disconnect and connect again the antenna cable to the GPS Chart Plotter. If, after 15 minutes, the GPS Chart Plotter does not get the fix, turn it Off and On again.

The GPS Chart Plotter does not turn Off. The GPS Chart Plotter may be in an unpredictable status. If, after pressing **[PWR]** (for at least 3 seconds) the GPS Chart Plotter does not turn Off, turn Off the voltage.

The GPS Chart Plotter screen becomes very dark after a long exposure to direct sunlight. The internal temperature is very high. Protect the GPS Chart Plotter from direct sunlight.

The GPS Chart Plotter does not respond to any command. The GPS Chart Plotter may be in an unpredictable status. Try to turn Off, and then turn On. If the problem persists, reset the RAM or remove power from the battery.

The location of my fix is not shown correctly on the Chart page. Please report to C-Map USA (800/424-2627) the Latitude & Longitude of your vessels position, the position where you think your vessels should be and details of the cartography such as “Compilation scale”, “Notice to mariners” and “Horizontal datum” (which can be seen by selecting the Chart page, press **[FIND],** move the ShuttlePoint knob to **Data Source** and press **[ENT])**.

After storing the Chart Plotter over the winter, It takes a long time to receive a fix. This is usually caused by the internal rechargeable memory battery from becoming low which could cause the Internal RAM memory to become corrupted. To solve this issue, perform a RAM clear (refer to Section 19).

NOTE

After performing a RAM Clear all Marks, Routes and tracks will be erased. To back up these points refer to Section 11 for details.

19. TECHNICAL TESTS

19.0 SYSTEM TEST

If you have connected your GPS Chart Plotter according to the instructions, and chosen the proper menu selection for your device, and are still having problems with your GPS Chart Plotter, the extended auto-test should help determine the problem. Make sure the GPS Chart Plotter is turned Off. While pressing and holding any other key, turn the GPS Chart Plotter On. A new menu will appear on the display:

(1) Software name and version

(2) NT+ Software Library version

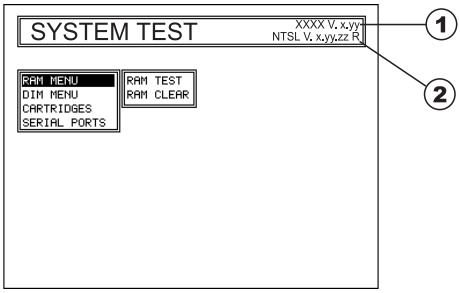


Figure 19.0 - System Test

Use the ShuttlePoint knob to select the desired test. Choose the test, press **[ENT]**. To exit from any submenu press **[CLR]**. To exit from the System Test turn Off the GPS Chart Plotter.

19.0.0 RAM Menu (reset)

This test verifies the integrity of the memories and if desired during this test all the internal memory can be erased and the default setting restored.

RAM Clear
To clear internal memory. If the GPS Chart Plotter exhibits unusual operations, or appears to be malfunctioning, it may be possible to correct the problem by clearing RAM.
This operation will erase all Marks, Routes, stored Track plots and Destinations. It will also return all selections (Input Data Format, Autopilot selection, etc.) to original default values.
To confirm clear RAM press **[ENT]** again (but if at this time you do not wish to clear RAM press **[CLR]**).

19.0.1 DIM Menu

To select the desired value for brightness and keypad light.

Contrast
Each time you move the ShuttlePoint knob to right, the screen will decrease brightness, move it to the left to increase brightness.

Backlight
The second option allows to set the backlight. Operates in similar mode as Contrast.

19.0.2 Cartridges

To check the C-CARD and its connector.

Internal Data Base Test
To test the Worldwide background.
C-CARD Test
To test the C-CARD. There are the possible situations:
1. if there is a C-CARD inserted in the slot and there is not a malfunction, the name of the C-CARD zone and the message "OK" are shown.
2. if there is a C-CARD inserted in the slot, but it is a defective C-CARD, the name of the C-CARD zone and the message "Faulty" are shown.
3. if there is not any C-CARD inserted in the slot, the message "not present" is shown.
4. if there is a User C-CARD inserted in the slot, the message **USER C-CARD** is shown.

C-CARD Connector
Indicates if there is a malfunction in the connector.

19.0.3 Serial Ports

If you are having problems receiving data from the position-finding instrument, this test should help determine the problem.

Change Parameters
To change the parameters of the serial interface. This menu allows to select the **Port** (Signal Source) between PORT 1, PORT 2, PORT 3 (PORT4 and PORT 5 ONLY FOR CPF300i); the **Baud Rate** between 300, 1200, 2400, 4800, 9600, 38400, 115200; the **Data Bits** (Word Length) between 7 or 8, the **Parity** between even, odd or none, the **Stop Bits** between 1 or 2. Default settings are: Port = PORT 2, Baud Rate = 4800, Data Bits = 8, Parity = none, Stop Bits = 1.

Input Data Display
To allow the GPS Chart Plotter to act as a computer terminal and display the incoming data exactly as it is received.
If the data displayed on the screen are unrecognizable, you may have selected the wrong input parameters for your particular receiver, for example, Baud Rate 9600 instead of Baud Rate 4800. Check your receiver manual to be sure that you have selected the proper parameter. If the screen is blank, you may have a broken connection, and no data is being received or you may have connected the device to the other input port.
Use **[ZOOM IN]** to stop (or continue after pause) data displaying, **[ENT]** to show data in hex or ASCII mode (normal or small) and **[CLR]** to exit.

Loop-Back Test
This is a special test done during the production phase to check the serial ports integrity. This function is only required by Standard Horizon.

20. SPECIFICATIONS

20.0 CPF180i SPECIFICATIONS

Power Consumption	: average = 0,95A@12V = 11,4W peak = 2,2A@12V = 26,4W
Power supply	: 10-35 Volt DC
Interface	: Input/Output Interface NMEA-0183
Display	: TFT Color LCD *(active area 5")* sunviewable technology
Display Resolution	: 320 x 232 pixels
Cartography	: **C-MAP By Jeppesen NT+/MAX C-CARD**
Operating temperature range	: 32°F/+131°F (0°C/+55°C)
Storage temperature	: -4°F/+158°F (-20°C/+70°C)
Water Resistance	: splash-proof
Memory	: Permanent
Keyboard	: Silicon rubber, backlight
Weight (without bracket)	: 1,655 lb (750 g)
User Points (Marks/Waypoints)	: 3000
Routes	: 50 (max 100 Waypoints each)
Track Points	: 10000 (recordable in 20 Tracks)
NMEA Output sentences	: GLL, VTG, BWC, WCV, APA, APB, HTG, BOD, XTE, RMA, RMB, RMC, GGA, HSC, DBT, DPT, MTW, VHW, WPL, RTE, GSA, GSV
NMEA Input sentences	: BWC, DSC, DSE, GGA, GLL, GSA, GSV, HDG, HDM, HDT, RMC, VHW, VTG, DPT, DBT, MTW, VWR, VWT, TLL, WPL, RTE

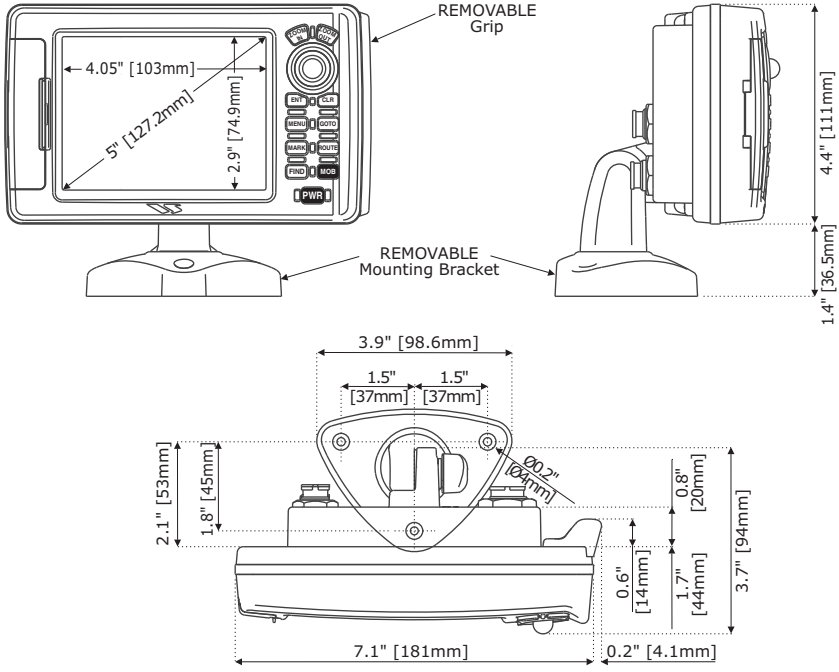


Figure 20.0 - CPF180i Dimensions [inch/mm]

20.1 CPF300i SPECIFICATIONS

Power Consumption	:	average = 1,15A@12V = 13,8W peak = 2,3A@12V = 27,6W
Power supply	:	10-35 Volt DC
Interface	:	Input/Output Interface NMEA-0183
Display	:	TFT Color LCD *(active area 7")* sunviewable technology
Display Resolution	:	800 x 480 pixels
Cartography	:	**C-MAP BY JEPPESEN NT+/MAX C-CARD**
Operating temperature range	:	32°F/+131°F (0°C/+55°C)
Storage temperature	:	-4°F/+158°F (-20°C/+70°C)
Water Resistance	:	splash-proof
Memory	:	Permanent
Keyboard	:	Silicon rubber, backlight
Weight (without bracket)	:	2,428 lb (1100 g)
User Points (Marks/Waypoints)	:	3000
Routes	:	50 (max 100 Waypoints each)
Track Points	:	10000 (recordable in 20 Tracks)
NMEA Output sentences	:	GLL, VTG, BWC, WCV, APA, APB, HTG, BOD, XTE, RMA, RMB, RMC, GGA, HSC, DBT, DPT, MTW, VHW, WPL, RTE, GSA, GSV
NMEA Input sentences	:	BWC, DSC, DSE, GGA, GLL, GSA, GSV, HDG, HDM, HDT, RMC, VHW, VTG, DPT, DBT, MTW, VWR, VWT, TLL, WPL, RTE

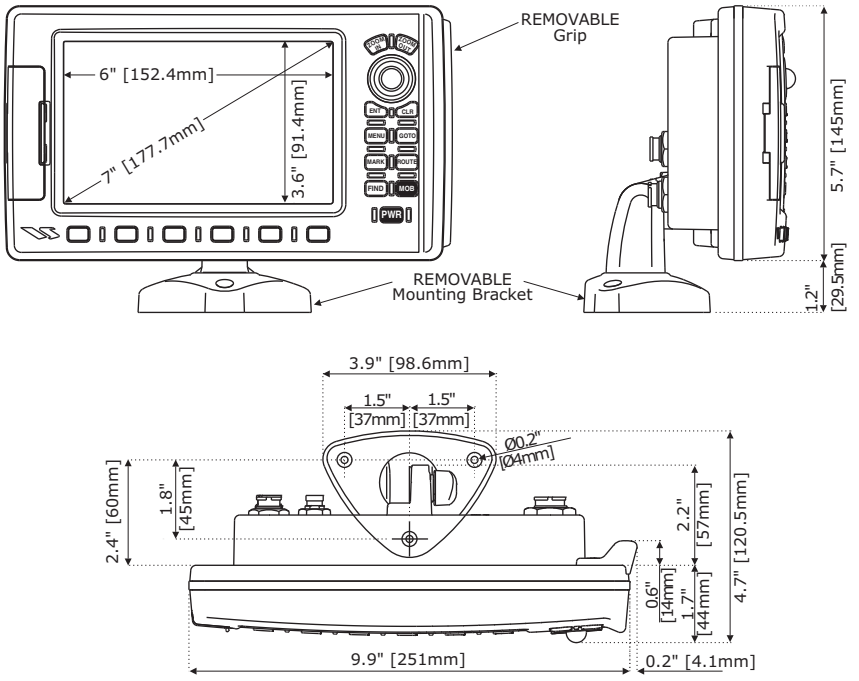


Figure 20.1 - CPF300i Dimensions [inch/mm]

20.2 FF MODULE SPECIFICATIONS

Power Output : 600W (4800Wpp), 50/200KHz Dual Frequency
Max Depth : 213m (700FT) at 200kHz, 457m(1500FT) at 50kHz
Automatic Recognition of the AIRMAR "X-DUCER ID" transducer for best performance
Advanced Digital Signal Processing
Speed & Temperature Sensor (if available on transducer)
Alarms (shallow water, depth, Fish, temp)
Trip Log, Fish Symbols
STC, Interference Rejection, Automatic noise reduction
A-Scope, White Line, Zoom x2/x4
Auto range/gain/frequency/shift/ping rate

20.3 OPTIONAL WAAS GPS RECEIVER SPECIFICATIONS

This optional WAAS GPS Receiver is based on a ultimate GPS engine that delivers accuracy better than three meters by decoding the GPS correction signals from the satellite-based WAAS (*Wide Area Augmentation System*). The GPS engine, interface electronics and the passive antenna are enclosed inside the water-proof plastic housing. This provides advanced state of the art GPS performance in an easy to use package.

Physical Characteristics		
Color	Ivory white	
Dimensions	97mm in diameter x 32mm in height (flush mounted) or 61,5mm on flag-pole mount	
Weight (without cable)	0,35 lb (160 g)	
Cable	white 15 meter 8x28AWG cable with 6 pins female connector	
Electrical Characteristics		
Input Voltage	10 Vdc to 35 Vdc unregulated	
Input Current	0.8 Wmax	
GPS Receiver Sensitivity	Tracking, Navigation	:-160 dBm
	Acquisition, Reacquisition	:-160 dBm
	Cold Starts	:-145 dBm
GPS Performance		
GNSS Systems	GPS	: L1 C/A
	GALILEO	: L1
	SBAS	: WAAS (North America), EGNOS (Europe), MSAS (Asia), GAGAN (Indian)
Geodetic Datum	WGS84	
Channels	32 + 18	
Acquisition Time		
Reacquisition	< 1 second	
Hot Start	1 second outdoor, 10 seconds indoor	
Warm Start	29 seconds	
Cold Start	29 seconds	
Accuracy		
GPS	< 2.5m	
with SBAS	< 2.0m	
NMEA Output		
Messages	GGA, RMC, GSA, GSV, TXT	

21. APPENDIX: TERMS

ALT (Altitude) – Shows the Altitude of the GPS Antenna on the mean sea level. It i received from GPS, sentence GGA.

APP Wind DIR SPD (Apparent Wind Direction) – Shows the Apparent Wind Direction when a external wind instrument with NMEA is connected.

APP Wind SPD (Apparent Wind Speed) – Shows the Apparent Wind Speed when a external wind instrument with NMEA is connected.

BRG (Bearing) – The direction from your current position to a Destination point.

COG (Course Over Ground) – The course your vessel is heading.

DATE – Shows the current date received by the GPS.

DEPTH – Shows the water depth when the optional Digital Depth Sounder is connected.

DEPTH AREAS – Depth Areas are the sea areas included in the user selectable range of minimum and maximum depth limits. The sea area that is **beyond** the selected range is filled by an uniform white color, the sea area that is **inside** the selected range is filled by ordinary multicolor shading. The Spot Soundings and Depth Contours are displayed on the range only.

DRAUGHT – Depth of water the vessel draws.
The definition of **draught** (or **draft**) of a ship's hull is the vertical distance between the waterline and the bottom of the hull (keel). Draught determines the minimum depth of water a ship or boat can safely navigate.
On the Celestial page the "**draught"** window shows the height of the tidal water during a 24hr period of time. This height is dependant on the time of day selected using the ShuttlePoint knob.

DSC (Digital Selective Calling) – Digital Selective Calling is a semi-automated method of establishing a VHF Radio call. DSC had also been designated as part of the Global Maritime Distress and Safety System (GMDSS). It is planned that DSC will eventually replace aural watches on distress frequencies and will be used to announce routine and urgent maritime safety information broadcasts.

DST (Distance) – The distance from your current position to a Destination point.

ETA – Estimated Time of Arrival

GPS Constellation – The Global Positioning System (GPS) is a space-based radio-navigation system consisting of a constellation of satellites and a network of ground stations used for monitoring and control. A minimum of 24 GPS satellites orbit the Earth at an altitude of approximately 11,000 miles providing users with accurate information on position, velocity and time anywhere in the world and in all weather conditions.

GPS2D – The GPS is receiving at least 3 valid satellites.

GPS3D – The GPS is receiving at least 4 Satellites.

HDG (Heading) – Shows heading from a External Flux Gate Compass when connected.

HDOP/VDOP – Horizontal/Vertical Dilution of Precision. It is a parameter indicating the

precision of the positioning system (GPS). The smaller the HDOP/VDOP value, the more accurately the position fix is provided.

HEIGHT – The current tide height referred to the vertical cursor.

HIGH WATER – The maximum level of the tide height in 24 hours.

LOW WATER – The minimum level of the tide height in 24 hours.

PINGO – It is a mound of earth-covered ice found in the Arctic and subarctic that can reach up to 70 metres (230FT) in Height and up to 600 metres (2.000 FT) in diameter.

Position Request – Marine DSC VHF Function of transmitting a GPS position to another Marine DSC VHF. When GPS Chart Plotter is connected to STANDARD HORIZON GPS the position of another vessel is shown on the Chart page.

SPEED – Shows the Speed Thru the Water when a Digital Speed Log is connected.

SOG (Speed Over Ground) – The speed you vessel is travelling at.

STEER – Heading to steer to destination Waypoint.

TIME – Shows the current time received by the GPS.

TRIP LOG – Shows the distance the vessel has travelled since the trip log was reset.

TRU Wind DIR (True Wind Direction) – Shows the True Wind Direction when an external wind instrument with NMEA is connected.

TRU Wind SPD (True Wind Speed) – Shows the True Wind Speed when an external wind instrument with NMEA is connected.

TTG (Time To Go) – Shows time to go to reach a Destination point.

UNITS

Nm Nautical Mile (1 NM = 1.15 Sm or 1.85Km)
Sm Statue Mile (1Sm = 0.87Nm or 1.61Km)
Km Kilometer (1 Kilometer = 0062 Sm or 0.54Nm)
FT Feet (1 Foot = 0.167 Fathoms or 0.305 Meters)
FA Fathom (1 Fathom = 6 Feet or 1.83 Meters)
Mt Meter (1 Meter = 3.28 Feet or 0.55 Fathoms)
Kts Knot (1 Knot = 1.15 MPH or 1.85 KPH)
MPH Miles Per Hour (1 MPH = 0.87 Knots or 1.61 KPH)
Kmh Kilometer Per Hour (1 KPH = 0.54 Knots or 0.62 MPH)

VMG – It is the destination closing Velocity. The VMG is calculated using the current speed of the vessel (SOG) and the difference between the current vessel course and the bearing to the Destination.

WAAS 2D/3D – The GPS is receiving a 2D or 3D position and the correction from the WAAS Satellite. WAAS consists of approximately 25 ground reference stations positioned across the United States that monitor GPS satellite data. Two master stations, located on either coast, collect data from the reference stations and create a GPS correction message. This correction accounts for GPS satellite orbit and clock drift plus signal delays caused by the atmosphere and ionosphere. The corrected differential message is then broadcast through one of two geostationary satellites, or satellites with a fixed position over the equator. The information is compatible with the basic GPS signal structure, which means any WAAS-enabled GPS receiver can read the signal.

WATER TEMP – Shows the sea water temperature for when a Digital Speed Log/Temp instrument with NMEA is connected.

XTE (Cross Track Error) – The distance your vessel is off course (left or right) to a Destination point.

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